STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
KENNETH I. FULTON, Director

DIVISION OF MINES
FERRY BUILDING, SAN FRANCISCO

WALTER W. BRADLEY — State Mineralogist

San Francisco] BULLETIN No. 122 [Sept. 1942

CALIFORNIA MINERAL PRODUCTION

AND

DIRECTORY OF MINERAL PRODUCERS

FOR 1941

By
HENRY H. SYMONS

19487

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LETTER OF TRANSMITTAL

September, 1942

To His Excellency, THE HONORABLE CULBERT L. OLSON,
Governor of the State of California.

SIR: I have the honor to herewith transmit Bulletin No. 122 of the Division of Mines, of the Department of Natural Resources, being the annual report of the statistics of the mineral production of California.

The remarkable variety, total values, and wide distribution of many of our minerals revealed herein show California's importance as a producer of commercial minerals among the states of the Union.

Respectfully submitted.

KENNETH I. FULTON,
Director, Department of Natural Resources

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INTRODUCTION

It is the endeavor of the staff of the State Division of Mines (formerly State Mining Bureau), in these annual reports of the mineral industries of California, to so compile the statistics of production that they will be of actual use to producers and to those interested in the utilization of the mineral products of our State, while at the same time keeping the individual's data confidential. In addition to the mere figures of output, we have included descriptions of the uses and characteristics of many of the materials, as well as a brief mention of their occurrences.

The compilation of accurate and dependable figures is an extremely difficult undertaking, and the State Mineralogist takes the opportunity of here expressing his appreciation of the cooperation of the producers in making this work possible. A fuller appreciation of the value of early responses to the requests sent out in January will result in earlier completion of the manuscript. Statistics lose much of their value if their publication is unnecessarily delayed.

Some of the data relative to properties and uses of many of the minerals herein described are repeated from preceding reports, as it is intended that this annual statistical bulletin shall be somewhat of a compendium of information on California's commercial minerals and their utilization.

WALTER W. BRADLEY,
State Mineralogist.

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MINERAL INDUSTRY, CALIFORNIA, 1941

DATA COMPILED FROM DIRECT RETURNS FROM PRODUCERS IN ANSWER TO INQUIRIES SENT OUT BY THE CALIFORNIA STATE DIVISION OF MINES, FERRY BUILDING, SAN FRANCISCO, CALIFORNIA

CHAPTER ONE

The total value of the mineral output for California for the year 1941 was $374,326,228, being an increase of $31,500,411 over the total for 1940 which was $342,825,817, the increase being due to stimulated outputs in production of petroleum, cement, miscellaneous stone, tungsten ore, quicksilver, natural gas, etc.

There were sixty-four different mineral substances including "gems" (varieties not segregated); and all fifty-eight counties of the State contributed one or more materials to the year's output.

As revealed by the following salient features of 1941 as compared with the previous year were: All groups of mineral substances such as fuels, metals, structural materials, and industrial minerals showed increases in total value, with the exception of the salines which showed a decrease in total value. Of the year's mineral output cement showed the greatest increase in total value, followed in turn by petroleum, miscellaneous stone, tungsten ore, quicksilver, natural gas, brick and hollow building tile, pottery clay, diatomite, chromite, magnesite, gypsum, lead, magnesium salts, etc. and the greatest annual value for their output in California was recorded by gypsum, iron ore, lime, magnesium salts, pumice and volcanic ash, quicksilver, silica (glass sand and quartz), soapstone and talc, sulphur, and strontium minerals. Decreases in the annual production were shown by gold, potash, borates, copper, soda, silver, salt, and limestone.

Of the fuels, petroleum showed an increase in value of $11,358,371, an increase in amount from 223,394,805 barrels to 229,664,784 barrels of crude oil. In March there were cuts in the prices paid for most grades of crudes with increases in April which in most cases were slightly higher than paid at the beginning of the year, after which there were no marked changes in crude prices. Natural gas showed increases in amount and value from 352,871,945 M.cu.ft. worth $20,618,893 to 378,173,737 M.cu.ft. worth $21,522,445.

Of the metals, the materials under this group showed increase in amount and value with the exception of gold, copper, silver, platinum group metals, and antimony. Quicksilver increased from 18,907 flasks worth $3,209,754 to 25,612 flasks worth $4,509,041, this being the largest annual value for this metal on record in this State. Tungsten ore increased from 107,022 units of WO_3 worth $2,267,135 to 171,672 units worth $4,080,628 and the largest production since 1916. The chromite output was the largest since 1918 and that of magnanese ore the largest since 1919. The gold output decreased from a total value of

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$50,948,485 to $49,307,755. The quicksilver miners received the highest average annual price per flask ever paid in this State, which was $176,033.

By Substances.

The following table shows the comparative yield of mineral substances of California for 1940 and 1941, as compiled from the returns received at the State Division of Mines, San Francisco, in answer to inquiry sent to producers:

Substance	1940		1941		Increase+ Decrease— Value
	Amount	Value	Amount	Value	
Antimony	56,845 lbs.	$7,958	19,153 lbs.	$2,537	$5,421—
Bentonite	10,360 tons	174,002	18,369 tons	164,582	9,420—
Borates	212,358 tons	5,254,154	224,986 tons	4,745,872	508,282—
Brick and hollow building tile		2,762,885		3,598,797	835,912+
Carbon dioxide	97,660 M.cu.ft.	23,877	138,862 M.cu.ft.	258,563	234,686+
Cement	13,955,255 bbls.	17,673,202	19,531,608 bbls.	26,248,694	8,575,492+
Chromite	2,599 tons	32,796	15,453 long tons	355,354	322,558+
Clay (pottery)	324,399 tons	687,871	551,347 tons	1,217,466	529,575+
Copper	12,833,363 lbs.	1,450,170	1,101,449 lbs.	955,970	494,200—
Dolomite	18,178 tons	52,167	22,300 tons	64,595	12,428+
Feldspar	3,022 tons	16,644	*	*	*
Gem material		3,176		870	2,306—
Gold	1,455,671 fine ozs.	50,948,485	1,408,793 fine ozs.	49,307,755	1,640,730—
Granite		198,896		261,661	62,765+
Gypsum	314,834 tons	599,944	432,784 tons	854,184	254,240+
Lead	3,092,636 lbs.	154,632	6,900,851 lbs.	393,348	238,716+
Lime	101,395 tons	902,322	110,719 tons	996,514	94,192+
Limestone	563,999 tons	895,832	459,153 tons	801,868	93,964—
Magnesium salts	4,325 tons	419,666	6,352 tons	654,372	234,706+
Manganese ore	314 tons	3,260	3,183 long tons	75,057	71,797+
Marble[a]		15,189		14,448	841—
Mineral water	16,190,549 gals.	960,701	17,746,256 gals.	988,520	27,819+
Natural gas	352,871,945 M.cu.ft.	20,618,893	378,173,737 M.cu.ft.	21,522,445	903,562+
Petroleum	223,294,805 bbls.	207,479,800	229,664,784 bbls.	218,838,171	11,358,371+
Platinum metals	1,358 fine ozs.	62,419	909 fine ozs.	40,590	21,829—
Pumice and volcanic ash	35,162 tons	126,516	85,309 tons	283,663	157,147+
Quicksilver	18,907 flasks	3,209,754	25,612 flasks	4,509,041	1,299,287+
Salt	462,282 tons	1,290,728	434,237 tons	1,180,929	109,771—
Sandstone		13,083		13,143	60+
Silica (quartz and glass sand)	101,041 tons	376,723	137,660 tons	514,266	137,543+
Silver	2,359,776 fine ozs.	1,678,063	2,154,188 fine ozs.	1,531,867	146,196—
Slate	4,777 tons	18,031	*	*	*
Soapstone and talc	37,433 tons	329,425	47,935 tons	525,396	195,971+
Soda	228,108 tons	2,339,639	179,210 tons	2,028,718	310,921—
Stone, miscellaneous[b]	23,184,186 tons	12,181,564	34,626,035 tons	19,559,883	7,378,319+
Strontium	627 tons	8,686	*	*	*
Sulphur	8,156 tons	105,619	9,495 tons	209,296	103,677+
Tungsten ore WO_3	107,022 units	2,267,135	171,672 units	4,080,628	1,813,493+
Zinc	182,088 lbs.	11,472	880,612 lbs.	66,046	54,574+
Unapportioned		[c]7,470,438		[d]7,461,119	9,319—
Total values		$342,825,817		$374,326,228	
Net increase					$31,500,311

* Included under 'Unapportioned.'

[a] Includes onyx and travertine.

[b] Includes macadam, crushed rock, ballast, rubble, riprap, sand and gravel.

[c] Includes barite, bituminous rock, bromine, calcium chloride, calcium silicate, coal, diatomite, iodine, iron ore, lithia, magnesite, molybdenum ore, potash, pyrite, sillimanite group, titanium, zircon, mica, tube-mill pebbles, paving blocks.

[d] Includes asbestos, barite, bituminous rock, bromine, calcium chloride, calcium silicate, coal, diatomite, feldspar, iodine, iron ore, lithia, magnesite, mica, mineral paint, molybdenum, potash, pyrite, sillimanite group, slate, strontium, titanium, zircon, paving block, tube-mill pebbles.

Of the structural materials all substances listed under this grouping showed an increased annual value with the exception of bituminous rock and marble, these being practically the same as in 1940. The group increased in total value from $34,739,419 to $51,938,605 with cement increasing from 13,955,255 barrels worth $17,673,202 to

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19,531,608 barrels worth $26,248,694 this being the largest annual output in amount, the value being passed only by that of 1927. Miscellaneous stone increased in total value from $12,181,574 to $19,559,883 and this annual value being passed only by that of 1926. Brick and hollow building tile increased from a total of $2,762,885 to $3,598,797.

By Counties.

The following table shows the comparative value of the mineral production of the various counties in the State for the years 1940 and 1941:

County	1940	1941
Alameda	$3,697,648	$4,447,145
Alpine	18,211	6,996
Amador	4,284,886	3,724,412
Butte	2,722,816	3,171,872
Calaveras	4,233,835	4,394,039
Colusa	45,337	41,859
Contra Costa	1,960,631	3,263,091
Del Norte	24,689	112,253
El Dorado	2,094,405	2,294,164
Fresno	22,103,968	23,751,031
Glenn	16,891	33,204
Humboldt	133,590	85,267
Imperial	461,180	578,808
Inyo	2,855,646	5,020,026
Kern	62,855,732	70,854,548
Kings	13,649,445	11,300,067
Lake	884,427	1,091,883
Lassen	14,869	39,322
Los Angeles	98,183,754	101,657,195
Madera	110,074	180,330
Marin	151,800	186,322
Mariposa	1,224,336	1,327,594
Mendocino	109,110	75,074
Merced	2,514,323	2,579,986
Modoc	93,042	125,427
Mono	666,280	544,547
Monterey	307,177	419,372
Napa	829,589	1,019,184
Nevada	11,351,165	10,255,176
Orange	17,575,147	19,399,481
Placer	2,023,484	1,759,591
Plumas	2,743,608	2,370,901
Riverside	3,918,747	6,351,012
Sacramento	5,928,834	7,484,001
San Benito	1,401,496	1,988,205
San Bernardino	15,772,742	16,953,033
San Diego	845,207	1,411,934
San Francisco	52,205	56,187
San Joaquin	1,146,912	1,832,622
San Luis Obispo	491,329	572,025
San Mateo	2,620,611	3,425,263
Santa Barbara	8,045,351	10,018,726
Santa Clara	3,229,052	5,832,080
Santa Cruz	2,779,306	3,260,828
Shasta	2,799,796	3,758,848
Sierra	969,323	964,347
Siskiyou	2,219,203	2,578,223
Solano	709,435	1,141,335
Sonoma	432,760	1,187,406
Stanislaus	1,558,205	1,325,932
Sutter	94,054	121,848
Tehama	51,880	2,925
Trinity	1,772,327	1,556,365
Tulare	220,065	272,661
Tuolumne	1,032,567	1,142,905
Ventura	20,647,881	21,430,061
Yolo	109,820	281,303
Yuba	4,035,614	3,265,986
Totals	$342,825,817	$374,326,228

The industrial-mineral group showed an increase in total value from $6,357,748 to $8,502,571, with gypsum, pumice and volcanic ash,

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silica, soapstone and talc, strontium, and sulphur each reaching an all-time high in value of total annual output. The total value of the saline group decreased from $13,674,519 to $11,927,533, and with only one of the more important substances showing an increased value for the year, namely magnesium salts. The decreased value here did not indicate a lack of demand for the materials classified under this group but was brought about by one of the larger plants being shut down for several months by labor trouble.

Total Mineral Production of California, by Years, Since 1887.

The following tabulation gives the total value of mineral production of California by years since 1887, in which year compilation of such data by the State Mining Bureau (now Division of Mines) began. At the side of these figures have been placed the values of the most important metal and nonmetal items—gold and petroleum.

In the same period copper made an important growth beginning with 1897 following the entry of the Shasta County mines, and later Plumas County. Cement increased rapidly from 1902, while crushed rock, sand and gravel as a group paralleled the cement increase. Quicksilver has been up and down. Mineral water and salt have always been important items, but the values fluctuate. Borax has increased materially since 1896. War-time increases, 1915–1918, were shown by chromite, copper, lead, magnesite, manganese, silver, tungsten and zinc. Most of these later declined, though silver, structural materials and copper increased in 1920–1924. Natural gas showed a steady increase from 1907, and in 1928–1933 its value was second only to petroleum. In 1939–1941 increases in output similar to those of 1915–1918 were shown by many mineral substances.

In 1929 the annual output of gold was the smallest since its discovery. From 1929 to 1940 there was a rapid increase in gold production, due in part to the raise in its price per ounce.

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Total Mineral Production of California, by Years, Since 1887

Year	Total value of all minerals	Gold, value	Petroleum, value
1887	$19,785,868	$13,588,614	$1,357,144
1888	19,469,320	12,750,000	1,380,666
1889	16,681,731	11,212,913	368,048
1890	18,039,666	12,309,793	384,200
1891	18,872,413	12,728,869	401,264
1892	18,300,168	12,571,900	561,333
1893	18,811,261	12,422,811	608,092
1894	20,203,294	13,923,281	1,064,521
1895	22,844,663	15,334,317	1,000,235
1896	24,291,398	17,181,562	1,180,793
1897	25,142,441	15,871,401	1,918,269
1898	27,289,079	15,906,478	2,376,420
1899	29,313,460	15,336,031	2,660,793
1900	32,622,945	15,863,355	4,152,928
1901	34,355,981	16,989,044	2,961,102
1902	35,069,105	16,910,320	4,692,189
1903	37,759,040	16,471,264	7,313,271
1904	43,778,348	19,109,600	8,317,809
1905	43,069,227	19,197,043	9,007,820
1906	46,776,085	18,732,452	9,238,020
1907	55,697,949	16,727,928	16,783,943
1908	66,363,198	18,761,559	26,566,181
1909	82,972,209	20,237,870	32,398,187
1910	88,419,079	19,715,440	37,689,542
1911	87,497,879	19,738,908	40,552,088
1912	88,972,385	19,713,478	41,868,344
1913	98,644,639	20,406,958	48,578,014
1914	93,314,773	20,653,496	47,487,109
1915	96,663,369	22,442,296	43,503,837
1916	127,901,610	21,410,741	57,421,334
1917	161,202,962	20,087,504	86,976,209
1918	199,753,837	16,529,162	127,459,221
1919	195,830,002	16,695,955	142,610,563
1920	242,099,667	14,311,043	178,394,937
1921	268,157,472	15,704,822	203,138,225
1922	245,183,826	14,670,346	173,381,265
1923	344,024,678	13,379,013	242,731,309
1924	374,620,789	13,150,175	274,652,874
1925	434,519,660	13,065,330	330,609,829
1926	450,330,856	11,923,481	345,546,677
1927	366,781,394	11,671,018	260,735,498
1928	332,224,233	10,785,315	229,998,680
1929	432,248,228	8,526,703	321,366,863
1930	365,604,695	9,451,162	271,699,046
1931	215,964,420	10,814,162	141,835,723
1932	199,196,493	11,765,726	142,890,247
1933	206,489,058	15,683,075	143,063,972
1934	237,374,709	25,131,284	159,529,671
1935	263,404,317	31,165,050	179,335,311
1936	327,804,268	37,710,470	211,667,185
1937	361,515,951	41,110,230	237,845,872
1938	380,444,976	45,889,515	258,345,343
1939	352,462,564	50,234,240	226,358,856
1940	342,825,817	50,948,485	207,479,800
1941	374,326,228	49,307,755	218,838,171
Totals	$9,113,913,683	$1,063,929,743	$5,770,284,843

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CHAPTER TWO

FUELS

Among the most important mineral products of California are its fuels. This subdivision includes coal, natural gas, and petroleum, the combined values of which make up practically 65 per cent of the State's entire mineral output for the year 1941.

There are deposits of peat known in several localities in California, small amounts of which are used as a fertilizer, and in stockfood preparations, but none has yet been recorded as utilized for fuel.

Comparison of values during 1940 and 1941 is shown in the following table:

Substance	1940		1941		Increase+ Decrease— Value
	Amount	Value	Amount	Value	
Coal*					
Natural gas	352,871,945 M cu. ft.	$20,618,893	378,173,737 M cu. ft.	$21,522,445	$903,552+
Petroleum	223,294,805 bbls.	207,479,800	229,664,784 bbls.	218,838,171	11,358,371+
Total value		$228,098,693		$240,361,607	
Net increase					$12,261,923

* Concealed under 'Unapportioned.'

COAL

Bibliography: State Mineralogist Reports VII, XII-XV (inc.), XVII, XIX-XXVIII (inc.), XXVI, XXXI, XXXV, XXXVII, U. S. Geol. Surv., Bulletins 285, 316, 431, 471, 581; Ann. Rept. 22, Pc. III.

The coal produced in California during 1941 is concealed under the 'Unapportioned' item so as not to reveal the output of a single producer each in Mendocino and Trinity counties. The 1940 production came from a property each in Fresno and Contra Costa counties. The 1939 output came from a property in Contra Costa County. The 1939-1940 total production amounted to 1,750 short tons valued at $8,100 f.o.b. mine. This coal was consumed by the local market and also used on the property for camp purposes, power and forge, to carry on regular operations and development work.

Total Coal Production of California.

The very considerable output of coal in the years previous to 1883 was almost entirely from the Mount Diablo district, Contra Costa County. Later the Tesla mine in Corral Hollow, Alameda County, was an important producer for a few years. Stone Canyon, Monterey County, was also an important producer for a short time, and there has been some coal shipped from properties in Amador, Fresno, Orange, Riverside, Siskiyou and Trinity counties. The following tabulation gives the annual tonnages and values, according to available records:

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Coal Output and Value, by Years

Year	Tons	Value	Year	Tons	Value
1861	6,620	$38,065	1902	88,460	$248,622
1862	23,400	134,550	1903	93,026	265,383
1863	43,200	248,400	1904	79,062	376,494
1864	50,700	291,525	1905	46,500	144,500
1865	60,530	348,048	1906	24,850	61,600
1866	84,020	483,115	1907	23,734	55,849
1867	124,690	716,968	1908	18,496	55,503
1868	143,676	826,137	1909	49,389	216,913
1869	157,234	904,096	1910	11,033	23,484
1870	141,890	815,868	1911	11,047	18,297
1871	152,493	876,835	1912	14,484	39,092
1872	190,859	1,097,439	1913	25,198	85,809
1873	186,611	1,073,013	1914	11,859	28,806
1874	215,352	1,238,274	1915	10,299	26,662
1875	166,638	958,169	1916	4,037	7,030
1876	128,049	736,282	1917	3,527	7,691
1877	107,789	619,787	1918	6,343	16,149
1878	134,237	771,863	1919	2,983	8,203
1879	147,879	850,304	1920	2,078	5,450
1880	236,950	1,362,463	1921	12,467	63,578
1881	140,000	805,000	1922	27,020	135,100
1882	112,592	647,404	1923	1,010	5,090
1883	76,162	380,810	1924	1,425	8,800
1884	77,455	309,950	1925	730	3,880
1885	71,615	286,460	1926	1,100	5,000
1886	100,000	300,000	1927	200	1,100
1887	50,000	150,000	1928	782	4,542
1888	95,000	380,000	1929	450	2,476
1889	121,280	288,232	1930	10,885	59,858
1890	110,711	283,019	1931	12,551	77,607
1891	93,301	204,902	1932	9,508	36,468
1892	85,178	209,711	1933	2,612	11,367
1893	72,603	167,555	1934	13,549	52,720
1894	59,887	139,862	1935	8,049	32,745
1895	79,858	193,790	1936	370	1,815
1896	70,649	161,335	1937	269	2,933
1897	87,449	196,255	1938	275	1,650
1898	143,045	337,475	1939	1,750	8,100
1899	160,941	420,109	1940	*	*
1900	176,956	535,531	1941		
1901	150,724	401,772	Totals	5,269,660	$23,396,739

The tonnages in the above table for the years 1861-1866 (incl.) are taken from the U. S. Geological Survey, "Mineral Resources of the U. S., 1910," p. 107. The values assigned for the years previous to 1883 are those given by W. A. Goodyear (Mineral Res., 1882, pp. 93-94), being an average of $5.75 per ton. From 1887 to date the figures are those of the California State Mining Bureau.

* Annual details concealed under 'Unapportioned.'

NATURAL GAS

Bibliography: State Mineralogist Reports VII, X, XII, XIII, XIV, XXIX, XXXVII. Bulletins 3, 16, 19, 69, 73, 89, 118. Summary Oil and Gas Supervisor, Dec., 1919; Aug., 1922; Mar., 1923; Mar. and Apr., 1926.

Statistics on the production of natural gas in California are in a considerable degree difficult to arrive at, as much of it that is utilized directly at the wells for heating, lighting, and driving gas engines is not measured. Hence, it is necessary to approximate the output of many of the operators in the oil fields, estimated on the number of lights, and on the number and horsepower of gas engines and steam boilers thus operated. The figures here given are for gas utilized locally and also that sold for distribution to consumers; and we consider are not overestimated, particularly in the seven oil-producing counties. It must be remembered that some of our important oil fields are removed many miles from the site of any other industry, and that the gathering of small amounts of gas and transporting it for any considerable distance

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may not always be profitable, nor is it often possible to have pipe-line facilities available to handle the gas accompanying the early gas production in newly developed fields. Wherever feasible, casing-head gas is used in driving gas engines for pumping and drilling, and in firing the boilers of steam-driven plants.

Actual Production of Natural Gas—How Disposed of in California—1941

County	Production, M cubic feet	Stored, M cubic feet	Unconserved wasted, M cubic feet	Utilized, M cubic feet
Fresno	70,767,450		2,073,378	68,694,072
Kern	99,661,014	4,183,428	3,670,461	91,807,125
Kings	30,196,706	291,165	266,189	29,739,352
Los Angeles	105,559,036	1,030,412	5,020,649	99,507,975
Orange	15,652,249	13,679	70,030	15,568,540
Sacramento	4,018,927		13,220	4,005,707
San Joaquin	10,107,182		2,114	10,105,068
Santa Barbara	5,993,133	18,294	372,422	5,602,417
Solano	11,836,422		19,325	11,817,097
Ventura	40,261,705	607,740	1,044,986	38,608,979
Other counties	2,842,903		25,498	2,817,405
Totals	396,896,727	6,144,718	12,578,272	378,173,737

Production and Value.

There is a rather wide variation in prices quoted for natural gas because a considerable part is used directly in the field for driving gas engines and firing boilers, and is therefore not measured nor sold. Such companies as have placed a valuation on the gas that was thus used in 1941 gave from 1.5¢ to 25¢ per 1000 cu. ft. at the well. From the totals shown in the tabulation following herein, the average value for all fields in 1941 works out at approximately 6.69¢ per M cu. ft. Approximately 7000 cu. ft. of gas is equal to one barrel of oil in heating value, and is so accounted for by many operators. In driving gas engines, about 4000 cu. ft. per 24 hr. are consumed by a 25-h.p. engine, and 63,700 cu. ft. per day for heating a 70-h.p. steam boiler, which figures have been utilized in compiling this report, in those cases where gas was not metered.

Utilized Production of Natural Gas in California, 1941

County	M cubic feet	Value
Fresno	68,694,072	$3,468,495
Kern	91,807,125	4,573,754
Kings	29,639,352	1,818,088
Los Angeles	99,507,975	6,192,819
Orange	15,568,540	992,116
Sacramento	4,005,707	355,397
San Joaquin	10,105,068	659,137
Santa Barbara	5,602,417	346,010
Solano	11,817,097	1,006,033
Ventura	38,608,979	1,913,657
Butte, Contra Costa, Humboldt, Lake, Mendocino, Stanislaus, Sutter, Tulare and Yolo*	2,817,405	196,939
Totals	378,173,737	$21,522,445

* Combined to conceal output of individual operators in each.

The above figures of 378,173,737 M. cubic feet of natural gas utilized worth $21,522,445 are an increase in amount and value for the 1941 output over that of 1940, which was 340,754,805 M. cubic feet.

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Los Angeles County led all others in the yield of natural gas during 1941, followed in turn by Kern, Ventura, and Kings counties.

The gas coming from Fresno, Kern, Sacramento, San Joaquin, Santa Barbara, Solano, Sutter, and Tulare counties showed an increase in amount and value, while that from Los Angeles and Ventura counties showed an increase in amount only with a decreased value; and that from Kings and Orange counties showed a decrease in both amount and value.

Natural Gas Production in California Since 1888.

The production of natural gas in California by years since 1888 is given in the following table. The first economic use of natural gas in California was from the famous courthouse well at Stockton, bored in 1854-1858. Beginning about 1883 and for several succeeding years, a number of gas wells were brought in around Stockton, and later at Sacramento. Natural gas was known in a number of other localities, and occasionally utilized in a small way, notably at Kelseyville in Lake County, and in Humboldt County near Petrolia and Eureka, but there are no available authentic records of amounts or values previous to the year 1888. The most important developments in the commercial production of natural gas have been coincident with developments in the oil fields, by utilizing the casing-head gas as well as that from dry-gas wells.

Natural Gas Production in California Since 1888

Year	M cubic feet	Value	Year	M cubic feet	Value
1888	[a]12,000	$10,000	1915	21,992,892	$1,706,480
1889	[a]14,500	12,680	1916	28,134,365	2,871,751
1890	[a]41,250	33,000	1917	44,343,020	2,964,922
1891	[a]39,000	30,000	1918	46,373,052	3,289,524
1892	[a]75,000	55,000	1919	52,173,503	4,041,217
1893	[a]84,000	68,500	1920	58,567,772	3,898,286
1894	[a b]85,000	75,000	1921	67,043,797	4,704,678
1895	[a b]110,000	100,000	1922	103,628,027	6,990,030
1896	[a b]131,000	110,157	1923	240,405,397	15,661,433
1897	[a]71,300	62,657	1924	209,021,596	15,153,140
1898	[a]111,165	74,424	1925	194,719,924	15,890,082
1899	115,110	95,000	1926	214,549,477	19,465,347
1900	40,566	34,578	1927	224,686,940	20,447,294
1901	120,800	92,034	1928	260,887,116	22,260,947
1902	120,968	99,443	1929	400,129,201	29,675,546
1903	120,134	75,237	1930	315,513,952	24,559,840
1904	144,437	91,035	1931	344,959,920	16,690,695
1905	148,345	102,479	1932	284,168,872	16,272,061
1906	168,175	109,489	1933	271,743,544	15,403,514
1907	169,991	114,759	1934	263,207,517	14,408,761
1908	842,883	474,584	1935	302,447,193	17,680,661
1909	1,148,467	616,932	1936	298,922,708	18,585,970
1910	10,579,933	1,676,367	1937	323,883,714	19,859,865
1911	[a]5,000,000	491,859	1938	332,358,439	22,310,755
1912	[a]12,600,000	940,076	1939	340,754,804	21,551,646
1913	14,210,836	1,053,292	1940	352,871,945	20,618,983
1914	16,529,963	1,049,470	1941	378,173,737	21,522,445
			Totals	6,039,397,247	$406,233,955

[a] Quantity, in part, estimated, where values only were reported.

[b] Tabulations published previously to 1933 included values of CO_2, now shown under "Industrial Materials."

Gasoline from Natural Gas.

More or less gas usually accompanies the petroleum in the old fields, and such gas carries varying amounts of gasoline. A total of 88 plants were in operation in 1941 recovering gasoline by compression or absorption from this 'casing-head' gas. After the gasoline is

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extracted the remaining 'dry gas' so far as practicable is taken into pipe lines, by which it is distributed to consumers, both domestic and commercial.

During the year 1941 a total of 534,962,919 gallons of natural gas gasoline, valued at $24,228,808, was reported from all fields by 88 plants, as compared with 560,762,325 gallons, worth $28,565,993, from 90 plants in 1940. In 1941 there was also a total of 68,930,472 gallons of liquefied petroleum gas shipped, as compared with 50,822,380 gallons for the previous year. The 1941 output was distributed by counties as follows:

Natural Gas Gasoline for 1941

County	Number of plants	Gallons	Value	Liquefied natural gas gallons
Fresno and Kings*	9	116,078,215	$5,192,446	30,861,848
Kern	16	69,534,745	3,480,020	16,894,419
Los Angeles	34	230,235,802	10,295,956	7,732,303
Orange	12	52,964,051	2,431,926	6,248,358
Santa Barbara	7	8,783,549	377,880	855,646
Ventura	10	57,366,557	2,450,580	6,337,898
Totals	88	534,962,919	$24,228,808	68,930,472

* As more natural gas comes from Fresno County and but two of the natural gas gasoline plants are in Kings County, it is impossible to segregate.

The usual recoveries of gasoline from natural gas vary from ½ gal. to 3 gal. per 1000 cu. ft. of gas handled, the average being about 1 gal. per 1000 cu. ft. The U. S. Bureau of Mines Report by Knudsen[1] gives the average recovery for 1941 as 1.558 gallons per 1000 cu. ft. of gas treated. His figures show the following production by methods:

	M cubic feet natural gas treated	Gallons of gasoline recovered	Recovery gallons per M cubic feet
Oil absorption	372,175,724	579,787,379	1.558

[1] Knudsen, E. T., The Petroleum Situation in the Pacific Coast Territory (Monthly for 1941), U. S. Bureau of Mines.

PETROLEUM

Bibliography: State Mineralogist Reports IV, VII, X, XII, XIII, XXIX, XXXI, XXXIII-XXXV, XXXVII. Bulletins 3, 11, 16, 19, 31, 32, 63, 69, 73, 82, 84, 89, 118. Reports of Oil and Gas Supervisor 1915 to date (issued in monthly chapters since April, 1919, to June, 1929, and quarterly from then on). U. S. Geol. Surv. Bulletins 213, 285, 309, 317, 321, 322, 340, 357, 398, 406, 431, 471, 541, 581, 603, 621, 623, 653, 691. Prof. Papers 116, 117. "American Petroleum; Supply and Demand"; Amer. Petr. Inst., 1925.

The crude petroleum produced in California during 1941 amounted to a total of 229,664,784 barrels having a value of $218,838,171 at the well. This was an increase in both amount and value compared with the 1940 output which was 223,294,805 barrels worth $207,479,800.

This total of quantity is compiled from the monthly production reports filed by the operators with the State Oil and Gas Supervisor.

The question of the value of the crude oil yield at the well is a difficult one to settle with exactitude principally because a large part of

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the output is not sold until after refining. The large refiners are also large producers of crude oil which they send direct from well to plant, hence much of the crude oil is not sold as such.

The value used in the statistical reports of the State Mining Bureau and the Division of Mines from 1914 to 1927 (inc.) was derived from an average of actual sales of crude oil of all grades in each field of the State and their average applied to the total yield of each respective field. The 1929-1933 values, used by the Division of Mines, were obtained by using the production of crude oil by gravities produced in each field[1] and applying an average of current price quotations for crude oil at the well as compiled by California Oil and Gas Association.

The value given to the 1934-1941 petroleum output by this department was obtained by using the average gravity oil for each field, to which was applied the average quotation for the year of said grade oil.

TABLE A

Production and Value of Crude Oil by Counties

County	1940		1941	
	Barrels	Value	Barrels	Value
Fresno	17,377,685	$18,562,902	20,302,492	$19,560,723
Kern	60,660,165	50,835,439	65,628,935	57,607,724
Kings	9,212,121	11,625,696	7,789,574	9,479,813
Los Angeles	90,696,857	85,342,723	86,550,854	87,264,337
Orange	17,998,175	16,190,394	19,962,737	17,987,662
Santa Barbara	10,270,200	6,365,757	11,963,579	7,701,836
Ventura	17,038,470	18,525,316	17,431,322	19,218,681
San Bernardino, San Luis Obispo, San Mateo, Santa Clara, Tulare*	41,132	31,573		
Sacramento, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Tulare, Ventura*			35,291	17,395
	223,294,805	$207,479,800	229,664,784	$218,838,171

* Combined to conceal the output of operators in each.

The foregoing totals show an average price of $0.953 per barrel for the year 1941, as compared with $0.929 in 1940, $1.009 in 1939, $1.038 in 1938, $0.997 in 1937, $0.986 in 1936, $0.870 in 1935, $0.913 in 1934, and $0.831 in 1933.

TABLE B

Average Price of Oil per Barrel, by Counties, 1932-1941

County	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
Fresno	$0.556	$0.573	$0.650	$0.941	$1.209	$1.255	$1.261	$1.173	$1.068	$0.963
Kern	.658	.665	.729	.729	.863	.886	.890	.826	.838	.878
Kings	.837	.934	1.085	1.045	1.338	1.390	1.390	1.430	1.262	1.217
Los Angeles	.860	.892	.990	.914	.974	.968	1.064	1.064	.941	1.008
Orange	.762	.827	.937	.898	.937	.945	.956	.952	.900	.901
San Luis Obispo	.550									
Santa Barbara	.962	.848	.951	.924	1.143	1.083	.974	.830	.620	.644
Santa Clara	.550									
Ventura	.849	.838	.944	.901	.971	1.050	1.102	1.090	1.087	1.102
State averages	$0.807	$0.831	$0.913	$0.970	$0.986	$0.997	$1.038	$1.009	$0 929	$0.953

For several years previous to 1919, the State average value per barrel at the well for crude oil as determined by the statistical returns

[1] By courtesy of Standard Oil Company of California.

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was noted to practically coincide with the quotations during the same years for 23° gravity oil in the San Joaquin Valley fields. In 1919 and since, the average values have worked out at figures corresponding to quotations up to, in one year as high as 28° oil, due to the large yield of high-gravity oils from the new fields in the Los Angeles-Orange counties area.

TOTAL PETROLEUM PRODUCTION OF CALIFORNIA

The presence of oil seepages and springs in Los Angeles and Ventura counties was known and utilized in a small way early in the history of California. Some also was shipped to refineries at San Francisco from Santa Barbara and Humboldt counties. In the light of present-day developments, the following reference to the previous year's production of oil and its future prospects as expressed by the San Francisco Bulletin of January 8, 1866, is strikingly prophetic even though skeptical:

"It is possible that the small quantity received (40,000 or 50,000 gallons in 1865) may be the forerunner of many millions which will, at some future time, lubricate the wheels of commerce and set a trade at work excelling in variety any that has thus far been known on this coast. At present, however, we admit to being a little skeptical about the assumption of the astute Professor Silliman that California will be found to have more oil in its soil than all the whales in the Pacific Ocean."

According to Hanks,[1] in 1874 production amounted to 36 bbl. per day from natural flows in Pico Cañon (Newhall), and at Sulphur Mountain (Ventura County), the oil being of 32° gravity average.

"Work was commenced in Pico Canyon in 1875 by drilling three shallow wells with spring pole, all of which yielded oil at depths of from 90 to 250 feet. Actual work of development commenced with steam machinery in 1877."[2]

In 1877 Pico averaged 40-50 bbl. daily, and Ventura 80 bbl. daily. In 1878, there was some production (at 60 bbl. per day, for a time) from wells in Moody Gulch, near Los Gatos, Santa Clara County, the oil being of 46° Baumé.

The first wells in the Coalinga, Fresno County, and Summerland, Santa Barbara County, fields were drilled in 1890, but Coalinga did not make its influence felt conspicuously on the state's annual output until 1903. The Summerland yield never has been large. The Salt Lake field near Los Angeles began production in 1894 and in 1897 reached over a million barrels annually.

In the Kern County fields, the first well was drilled in Sunset in 1891, Midway in 1900, McKittrick in 1892, Kern River in 1899. The Sunset-Midway district attained a yield of over 4,000,000 bbl. in 1909, and over 20,000,000 bbl. in 1910. Kern River field produced over 3,000,000 bbl. in 1901.

The first well in the Santa Maria-Lompoc group, Santa Barbara County, was drilled in 1901, and the district advanced to a yield of over 3,000,000 bbl. annually in 1905.

The Whittier-Fullerton field in Los Angeles and Orange counties became an important factor in 1902. The Montebello field, Los Angeles County, was the conspicuous addition in 1918-1919; and Elk Hills, Kern County, with Huntington Beach and Richfield, Orange County,

[1] Hanks, Henry G., Report IV of State Mineralogist, p. 298, 1884.
[2] *Idem.* p. 301.

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in 1920. In 1921, the new fields added were Long Beach and Santa Fe Springs, Los Angeles County; in 1922, Torrance field in Los Angeles County, and Wheeler Ridge field in Kern County; but the production from the large number of new wells started in these new Los Angeles County fields did not reach its peak until August and September, 1923. Dominguez (Compton) came in during 1923; followed by Rosecrans and Inglewood in 1924. Ventura recorded important additions to its producing area in 1925 and 1926. Seal Beach, Orange County, and Mt. Poso, Kern County, were the new fields added in 1926; Round Mountain, Kern County, and Rincon, Ventura County, were the new fields added in 1927; with Potrero in Los Angeles County, Elwood in Santa Barbara County and Kettleman Hills in Kings County in 1928.

During 1929 Playa del Rey was added to the oil fields in Los Angeles County, and more recently a number of others have been added in Fresno, Los Angeles, Kern, and Santa Barbara.

The effect of the advent of these various fields to the producing column will be noted in the tabulation herewith, by years:

TABLE C

Total Petroleum Production in California

Year	Barrels	Value	Year	Barrels	Value
To and including 1875	[a]175,000	[b]$472,500	1909	58,191,723	$32,398,187
1876	12,000	30,000	1910	77,697,568	37,689,542
1877	13,000	29,250	1911	84,648,157	40,552,088
1878	15,227	30,454	1912	89,689,250	41,868,344
1879	19,858	39,716	1913	98,494,532	48,578,014
1880	40,552	60,828	1914	102,881,907	47,487,109
1881	99,862	124,828	1915	91,146,620	43,503,837
1882	128,636	257,272	1916	90,262,557	57,421,334
1883	142,857	285,714	1917	95,396,309	86,976,209
1884	262,000	655,000	1918	99,731,177	127,459,221
1885	325,000	750,750	1919	101,182,962	142,610,563
1886	[a]377,145	[b]870,205	1920	103,377,361	178,394,937
1887	678,572	1,357,144	1921	112,599,860	203,138,225
1888	690,333	1,380,666	1922	138,468,222	173,381,265
1889	303,220	368,048	1923	262,875,690	242,731,309
1890	307,360	384,200	1924	228,933,471	274,652,874
1891	323,600	401,264	1925	232,492,147	330,609,829
1892	385,049	561,333	1926	224,673,281	345,546,677
1893	470,179	608,092	1927	231,195,774	260,735,498
1894	783,078	1,064,521	1928	231,811,465	229,998,680
1895	1,245,339	[b]1,000,235	1929	292,534,221	321,366,863
1896	1,257,780	1,180,793	1930	227,328,988	271,699,046
1897	1,911,569	1,918,269	1931	188,310,605	141,835,723
1898	2,249,088	2,376,420	1932	177,745,286	142,890,247
1899	2,677,875	2,660,793	1933	172,139,362	143,063,972
1900	4,319,950	4,152,928	1934	174,721,282	159,529,671
1901	7,710,315	2,961,102	1935	205,979,855	179,335,311
1902	14,356,910	4,692,189	1936	214,776,227	211,667,185
1903	24,340,839	7,313,271	1937	238,558,562	237,845,872
1904	29,736,003	8,317,809	1938	249,395,763	258,354,343
1905	34,275,701	9,007,820	1939	224,253,110	226,358,856
1906	32,624,000	9,238,020	1940	223,294,805	207,479,800
1907	40,311,171	16,783,943	1941	229,664,784	218,838,171
1908	48,306,910	26,566,181	Totals	5,825,328,861	$5,773,899,360

[a] U. S. G. S., Min. Res. of U. S., 1886, p. 440, for quantities to and including 1886.

[b] Values have been estimated for the years to and including 1886, after consulting a number of contemporaneous publications, including the Mining & Scientific Press, Reports of the State Mineralogist, and U. S. Reports. The figures for 1887 to date are from records of the State Mining Bureau.

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Well Data:

The following table is compiled from monthly statements issued by the American Petroleum Institute:

TABLE D

Wells Operated, by Fields, 1941

Field	Wells producing Dec., 1940	Wells producing Dec., 1941	Wells completed during year	Daily initial output	Wells abandoned during year	Bbls. per well produced per day Dec., 1940	Bbls. per well produced per day Dec., 1941
GROUP No. 1:							
Arvin	15	14				70.2	47.6
Belridge—North	73	48	8	2,240	1	135.5	144.8
Belridge—South	189	207				11.4	10.3
Canal	35	35				148.2	121.9
Canfield Ranch	1	1				43.0	42.0
Coalinga	907	1,047	68	119,261		36.5	40.6
Coles Levee	34	108	46	36,865	9	139.9	144.6
Dyer Creek			1	184	1		
Edison	97	111	8	1,043	1	28.9	10.3
Elk Hills	197	143	8	3,767	2	61.2	45.8
Fruitvale	171	173	2	240		31.1	33.5
Greeley	38	68	28	49,147	2	131.0	121.9
Helm		1	1	260	1		68.0
Jacalitos		1	1	128			4.0
Kern River	1,551	1,953	23	1,711		6.7	7.1
Kettleman North Dome	268	283	18	8,466	2	145.2	122.5
Lost Hills	265	370	3	18	4	13.1	9.8
McKittrick	198	220	8	1,195	2	18.1	19.9
Midway-Sunset	2,506	2,755	12	875	8	19.1	17.6
Mountain View	175	164			25	34.0	30.2
Mount Poso	285	356	51	12,465	6	30.8	38.8
Paloma	5	2	9	3,586	4	82.1	344.0
Raisin City		6	6	2,885	2		114.3
Rio Bravo	72	96	25	35,729	1	147.1	138.3
Riverdale		1	1	558			
Round Mountain	223	236	8	1,423	5	34.0	32.3
Shafter		1	1	488			37.0
Strand	8	12	3	6,405	2	172.4	130.1
Ten Section	71	112	37	59,220		158.6	140.6
Tupman	42					156.5	
Union Avenue		2	3	240	—2		87.5
Wasco	12	13	1	3,136		137.8	12.7
Wheeler Ridge	34	34			1	8.9	7.9
GROUP No. 2:							
Capitan	44	51	5	4,943		39.0	32.1
Elwood	74	59	2	500	2	42.9	53.2
Rincon	69	69	7	1,475	4	69.6	45.2
San Miguelito	27	42	10	7,320		125.5	80.4
Santa Barbara	20	17	1	25	4	9.3	10.1
Santa Maria	181	205	8	4,271	4	44.5	43.5
Santa Maria Valley	142	199	56	43,159	2	117.8	91.8
Summerland	8	8			3	2.0	1.8
Ventura Avenue	328	322	40	54,070	5	102.5	111.0
Ventura-Newhall	522	568	40	36,160	28	17.9	22.8
Watsonville	7	7				3.6	3.6
GROUP No. 3:							
Brea Olinda	362	367	2	80	1	15.2	15.8
Coyote—East	85	93	7	1,769	2	45.7	43.3
Coyote—West	78	77	4	1,113	5	113.8	114.1
Dominguez	200	281	48	22,528	5	101.0	82.1
El Segundo	39	36			5	41.0	36.7
Huntington Beach	551	590	52	19,951	27	47.3	47.8
Inglewood	200	208	18	26,072	2	55.7	73.9
Lawndale	3	3				11.0	9.0
Long Beach	1,215	1,197	24	3,022	64	34.4	32.1
Los Angeles-Salt Lake	101	98			3	5.1	5.5
Montebello	331	342	2	397	9	48.3	33.2
Playa Del Rey	146	136			13	24.4	25.2
Potrero	20	22	2	800		106.7	68.0
Richfield	297	310	2	40	3	25.4	27.0
Rosecrans	171	179	12	1,706	10	72.5	44.7
Santa Fe Springs	582	579	4	257	15	43.0	38.6
Seal Beach	120	116	6	5,835	1	55.3	60.3
Torrance	632	613	21	2,236	56	15.0	14.1
Turnbull Canyon		1	1	225	4		142.0
Whittier	38	155	2	125	1	5.6	6.3
Wilmington	910	1,073	165	59,448	4	88.8	81.6
Miscellaneous drilling					94		

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TABLE D—Continued

Wells Operated, by Fields, 1941—Continued

Field	Wells producing Dec., 1940	Wells producing Dec., 1941	Wells completed during year	Daily initial output	Wells abandoned during year	Bbls. per well produced per day Dec., 1940	Bbls. per well produced per day Dec., 1941
Group No. 4—Gas Fields:							
Buena Vista Lake	3	5					
Buttonwillow	23	18					
Chowchilla					5		
Delano	21	15	1	Gas			
Fairfield Buttes		2			2		
Goleta		5					
Marysville Buttes	3	3					
McDonald Island	5	6	1	Gas			
Rio Vista	23	36	14	Gas			
Semi-Tropic	2	3					
Tracy	4	4			1		
Vernalis			2	Gas			
Totals	15,013	16,693	939	649,062	465	88.8	40.1

Specific Gravity of Oils Produced.

The proportion of heavy and light oil produced in the various fields is shown in Table E, following, for which we are indebted to the Standard Oil Company. Specific gravities in California range from 8° Baumé in the Casmalia field, Santa Barbara County, to 60° in Kettleman Hills, Kings County.

California crude oils are all essentially of asphalt base, with a few notable exceptions. In the following localities are wells yielding crudes containing both asphalt and paraffine constituents: Oil City field, Coalinga; a few deep wells in East Side field, Coalinga; a considerable part of the Ventura County field; Western Minerals area, south of Maricopa; Wheeler Ridge, Kern County.

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TABLE E

Production of Light and Heavy Oils, by Fields, for 1941

Field	Under 20° (barrels)	20° and above (barrels)	Total (barrels)
San Joaquin Valley—			
Arvin		267,285	267,285
Belridge—North	6,002	3,423,072	3,429,074
Belridge—South	414,435	340,851	755,286
Canal		1,817,436	1,817,436
Canfield Ranch		15,720	15,720
Coalinga	2,138,195	2,438,494	4,576,689
Coalinga Eocene		9,501,951	9,501,951
Coles Levee and Richfield Western		5,715,588	5,715,588
Devils Den	6,620		6,620
Edison	722,988	303,156	1,026,144
Elk Hills	649,315	2,840,547	3,489,862
Fruitvale	448,347	1,582,724	2,031,071
Grapevine		5,762	5,762
Greeley		2,458,855	2,458,855
Helm		1,756	1,756
Kern River	3,912,923		3,912,923
Kettleman Hills (North Dome)		13,963,336	13,963,336
Kettleman Hills (Middle Dome)			
Lost Hills	833,899	406,880	1,240,779
McKittrick	1,413,566	6,252	1,419,818
Midway-Sunset	7,664,143	9,765,206	17,429,349
Mount Poso	4,089,854		4,089,854
Mountain View	75,116	1,867,599	1,942,715
Paloma		56,370	56,370
Panoche Creek		1,799	1,799
Poso Creek	455,118		455,118
Raisin City		59,202	59,202
Rio Bravo		4,516,174	4,516,174
Round Mountain	2,677,441	115,845	2,793,286
Strand		547,249	547,249
Ten Sections (Old River)		5,232,150	5,232,150
Terra Bella	910		910
Wasco		644,339	644,339
Wheeler Ridge		104,008	104,008
Coastal—			
Arroyo Grande	8,570	5,259	13,829
Capitan		737,860	737,860
Elwood		1,166,229	1,166,29
Lompoc	102,323	23,704	126,027
Newhall	4,430	2,722,425	2,726,855
Rincon		1,537,946	1,537,946
San Miguelito		1,429,771	1,429,771
Santa Barbara Mesa	73,888		73,888
Santa Maria	8,775,422	1,102,809	9,878,231
Summerland	4,659		4,659
Ventura Avenue		12,889,772	12,889,772
Ventura County	96,256	1,444,906	1,541,162
Watsonville	10,950		10,950
Southern California—			
Brea Olinda	301,025	1,777,623	2,078,648
Coyote—East	56,889	1,330,842	1,387,731
Coyote—West		3,075,486	3,075,486
Domingues		8,493,672	8,493,672
El Segundo	106,343	417,591	523,934
Huntington Beach	623,837	10,113,489	10,737,326
Inglewood	648,616	4,250,991	4,899,607
Lawndale		10,836	10,836
Long Beach	99,534	14,500,579	14,600,113
Los Angeles	69,172		69,172
Montebello	13,605	4,858,991	4,872,596
Playa Del Rey	68,800	1,244,765	1,313,565
Potrero		709,844	709,844
Richfield	688,620	2,033,221	2,721,841
Rosecrans		3,428,692	3,428,692
Salt Lake	124,801		124,801
Santa Fe Springs		8,547,393	8,547,393
Seal Beach		2,426,993	2,426,993
Torrance	1,453,098	1,747,037	3,200,135
Whittier	120,851	59,359	180,210
Wilmington	9,899,809	20,762,319	30,662,128
Grand totals	48,860,370	180,845,653	229,706,023

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Utilization of California Crude Oil.

Most of the crude oil produced in California is sent to storage reservoirs at tank farms near the oil fields and from these reservoirs by pipelines to the refineries, the larger ones of which are located in the vicinity of Los Angeles and on San Francisco Bay.

During 1941 the crude oil consumed in California according to the U. S. Bureau of Mines[1] was 221,014,000 barrels sent to the stills at the refineries; 10,858,000 barrels either consumed as fuel or added to residuum; there was practically no shipments of crude out of the State as such; also stocks were depleted by 1,831,000 barrels, compared with 1940 when 196,345,000 barrels were sent to the stills at the refineries; 19,165 barrels for shipments out of the State; and 6,889,000 barrels were either consumed as fuel or added to residuum; also stocks were depleted by 1,027,000 barrels.

The production of petroleum products during 1940 and 1941 is shown in Table F:

TABLE F

Commodity	1940 Amount in barrels	1941 Amount in barrels
Crude petroleum to stills	196,345,000	207,204,000
Natural gas gasoline	13,953,000	13,810,000
Gasoline and naphtha distillates	77,953,000	86,392,000
Kerosene	3,866,000	2,695,000
Lubricating oil and greases	3,978,000	3,978,000
Gas oil and diesel oil	31,642,000	31,721,000
Residuum and non-gasoline-bearing crude (fuel oil)[a]	77,934,000	83,150,000
Asphalt and road oil	6,659,000	8,371,000
Totals[b]	210,298,000	221,014,000
[a] Includes heavy non-gasoline crude oil	6,889,000	10,858,000

[b] Totals of crude oil and natural gasoline.

Operating Data.

The following tabulation (Table G) is compiled from data published by the State Division of Oil and Gas,[2] semiannually, and here combined to show the entire year's operations for all fields. The districts are the geographical subdivisions as administered by that Division and which are outlined on the accompanying map.

It will be noted that the state average yield of oil per-well-per-day was 44.4 barrels for the first six months of 1941 and 43.7 barrels for the second. This is somewhat higher than the figures 40.1 barrels average for December derived from American Petroleum Institute data as shown in Table D, on a previous page, due in part at least, to the fact that the latter is on a full-time basis, whereas the Division's figures allow for shut-down time.

[1] Knudsen, E. T., The petroleum situation in the Pacific Coast territory (monthly) 1941, U. S. Bureau of Mines.

[2] Summary of Operations—California Oil Fields; Division of Oil and Gas, Fifteenth Annual Report of State Oil and Gas Supervisor, Vol. 36, No. 1, July, Aug., Sept., 1940, and No. 3, Jan., Feb., March, 1941.

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TABLE G

Production Statistics and Operating Data of California Oil Fields—1941

Field	January 1 to June 30					July 1 to December 31					
	Average number of producing wells—actual	Oil (bbls.)	Number of days producing	Production per well per day (bbls.)	Percentage of time wells produced	Average number of producing wells—actual	Oil (bbls.)	Number of days producing	Production per well per day (bbls.)	Percentage of time wells produced	Cumulative production of oil (bbls.) to end 1941
Dist. 1—Aliso Canyon	12	558,099	1,492	374.1	68.7	13	394,505	1,292	305.3	54.0	1,708,980
Beverly Hills	3	19,873	532	37.4	98.0	3	19,727	543	36.3	98.4	4,385,803
Brea-Olinda	340	1,036,307	56,432	18.4	91.7	345	1,089,735	58,759	18.5	92.6	168,587,974
Coyote Hills	186	2,238,158	29,568	75.7	87.8	191	2,383,146	31,738	75.1	90.3	170,375,801
Del Valle	2	260,556	362	719.8	100.0	9	434,934	1,432	303.7	86.5	726,181
Dominguez	224	4,105,123	36,179	113.5	89.2	262	4,383,135	42,178	103.9	87.5	130,686,317
El Segundo	36	267,350	6,245	42.8	95.8	36	265,950	6,397	41.6	96.6	10,165,508
Huntington Beach	603	5,105,762	96,696	52.8	88.6	624	5,590,205	102,612	54.5	89.4	300,788,904
Inglewood	193	2,140,787	26,435	81.0	75.7	204	2,745,732	30,312	90.6	80.8	126,330,285
Lawndale	3	5,831	521	11.2	95.9	3	5,376	537	10.0	97.3	1,105,008
Long Beach	1,251	7,425,103	217,905	34.1	96.2	1,238	7,046,348	216,893	32.5	95.2	661,411,116
Los Angeles City	88	35,890	15,519	2.3	97.4	91	38,271	16,168	2.4	96.6	54,178,249
Montebello	353	2,629,454	59,367	44.3	92.9	345	2,228,544	59,154	37.7	93.2	127,141,351
Newhall	13	12,747	2,080	6.1	88.4	13	12,780	2,346	5.4	98.1	1,835,251
Newhall-Potrero	17	414,346	2,993	138.4	97.3	23	588,480	4,154	141.7	98.2	2,308,469
Newport	0	0	0	0	0	0	0	0	0	0	154,328
Playa del Rey	150	652,997	25,836	25.3	95.2	144	629,241	25,326	24.8	95.6	45,824,095
Potrero	23	401,563	3,896	103.1	93.6	23	305,601	3,962	77.1	93.6	4,117,236
Richfield	298	1,178,426	49,273	23.9	91.3	306	1,340,998	52,560	25.5	93.4	95,109,545
Rosecrans	179	1,868,490	30,742	60.8	94.9	181	1,551,269	32,094	48.3	96.4	48,573,226
Salt Lake	8	40,864	1,377	29.7	95.1	8	44,833	1,407	31.9	95.6	7,439,511
Santa Fe Springs	585	4,304,992	100,225	43.0	94.7	576	4,229,191	101,367	41.7	95.6	477,677,774
Seal Beach	118	1,169,712	17,296	67.6	81.0	117	1,248,492	17,726	70.4	82.3	89,754,406
Torrance	638	1,594,276	109,271	14.6	94.6	621	1,559,656	107,858	14.5	94.4	102,988,290
Whittier	44	35,178	7,350	4.8	92.3	117	130,960	19,634	6.7	91.2	19,013,354
Wilmington	958	14,858,388	164,435	90.4	94.8	1,033	15,824,800	181,003	87.4	95.2	140,798,498
Los Angeles County	4	9,497	433	21.9	59.8	4	51,913	666	77.9	90.5	123,076
San Bernardino County	0	0	0	0	0	0	0	0	0	0	14,951
Totals	6,329	52,369,769	1,062,460	49.3	92.7	6,530	54,143,822	1,118,118	48.4	93.1	2,793,323,487
Dist. 2—Bardsdale	149	209,782	24,858	8.4	92.2	153	218,869	25,905	8.4	92.0	13,937,244
Ojai	32	17,933	5,019	3.6	86.7	46	24,942	5,400	4.6	63.8	3,148,399
Piru	96	164,329	15,562	10.6	89.6	85	164,906	13,923	11.8	89.0	8,122,413
Rincon	109	1,497,266	18,123	82.6	91.9	116	1,472,053	18,959	77.6	88.8	21,677,518
Santa Paula	48	12,887	5,884	2.2	67.7	46	13,910	5,136	2.7	60.7	2,181,663
Sespe	25	41,871	3,005	13.9	66.4	25	44,998	3,525	12.8	76.6	2,951,573
Simi	52	15,753	8,299	1.9	88.2	48	14,177	7,147	2.0	80.9	2,153,125
South Mountain	89	264,558	14,997	17.9	93.1	90	263,325	15,347	17.2	92.7	22,583,575
Ventura	351	6,148,192	55,111	111.6	86.7	344	6,741,503	54,478	123.7	86.1	238,730,307
Ventura County	2	49,572	362	136.9	100.0	2	50,496	306	165.0	83.2	461,668
Totals	953	8,422,143	151,220	55.7	87.7	955	9,009,179	150,126	60.0	85.4	315,947,485

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Dist. 3—Arroyo Grande	15	14,633	2,337	6.3	86.1	11	9,359	1,643	5.7	81.2	1,217,003
Capitan	47	335,270	6,446	52.0	75.8	53	405,096	7,720	52.5	79.2	5,653,826
Casmalia	5	52,557	601	87.4	66.4	8	77,927	888	87.8	60.3	14,565,831
Cat Canyon	20	698,035	2,482	281.2	68.6	23	1,038,332	3,204	324.1	75.7	25,051,364
Elwood	64	583,905	10,601	55.1	91.5	62	576,119	11,037	52.2	96.7	68,354,994
Goleta	0	0	0	0	0	0	0	0	0	0	140,281
La Goleta Gas	[3]0	0	0	0	0	[2]6	0	0	0	0	283
Lompoc	7	50,280	1,017	49.4	82.8	10	111,642	1,417	78.8	78.3	10,198,115
Mesa	24	41,580	3,935	10.6	90.6	23	33,879	3,880	8.7	91.7	3,351,419
Moody Gulch	1	591	84	7.0	46.4	1	571	184	3.1	100.0	58,080
Santa Maria	140	503,334	19,197	26.2	75.8	148	634,588	23,010	27.6	84.5	97,459,625
Santa Maria Valley	144	3,328,454	20,189	164.9	77.5	181	3,487,756	24,242	143.9	72.8	22,161,185
Sargent	8	4,559	1,056	4.3	72.9	8	4,906	1,176	4.2	79.9	749,568
Summerland	3	2,497	500	5.0	92.1	3	2,328	515	4.5	93.3	3,168,800
San Luis Obispo County—Huasna Area	0	0	0	0	0	0	0	0	0	0	11,470
San Mateo County—Half Moon Bay Area	2	382	271	1.4	74.9	1	85	60	1.4	32.6	41,330
Totals	480	5,616,077	68,716	81.7	79.1	532	6,382,588	78,976	80.8	82.0	252,183,174
Dist. 4—Belridge	306	2,173,591	49,025	44.3	88.5	293	2,026,732	49,105	41.3	91.1	66,932,584
Buttonwillow Gas	[2]17	0	0	0	0	[2]12	0	0	0	0	0
Canal	28	916,448	4,364	210.0	86.1	32	899,446	5,072	177.3	86.1	6,582,865
Canfield Ranch	1	7,895	180	43.9	99.4	1	7,795	182	42.8	98.9	88,191
Coles Levee	88	2,819,785	13,161	214.3	82.6	99	2,889,907	16,415	176.1	90.1	8,834,096
Coles Levee						[2]1	0	0	0	0	0
Devils Den	4	3,691	549	6.7	75.8	8	3,374	789	4.3	53.6	77,927
Edison	97	550,915	13,830	39.8	78.8	103	485,658	15,133	32.1	79.8	8,654,156
Elk Hills	192	2,161,944	32,798	65.9	94.4	148	1,329,638	20,867	63.7	76.6	157,125,094
Elk Hills	[2]1	0	0	0	0	[2]1	0	0	0	0	0
Fruitvale	159	991,390	23,915	41.5	83.1	161	1,115,285	25,375	44.0	85.1	24,830,702
Greeley	47	1,067,952	6,045	176.7	71.1	60	1,404,078	7,691	182.6	69.7	6,443,990
Kern River	1,669	1,742,374	277,949	6.3	92.0	1,934	2,167,373	323,046	6.7	90.8	323,405,815
Lost Hills	291	620,298	48,568	12.8	92.2	318	652,167	55,150	11.8	94.3	51,330,137
McKittrick-Temblor	203	653,599	33,674	19.4	91.6	221	762,914	37,411	20.4	91.6	92,237,039
Midway-Sunset	2,577	8,540,983	399,776	21.4	85.7	2,745	8,966,028	443,794	20.2	87.9	910,079,211
Midway-Sunset	[2]19	0	0	0	0	[2]21	0	0	0	0	0
Mt. Poso	289	1,689,918	33,092	51.1	63.3	323	2,412,114	44,793	53.9	75.4	54,967,262
Mountain View	173	1,106,422	27,737	39.9	88.6	168	1,027,493	27,618	37.2	89.3	40,625,695
Paloma	2	33,032	150	220.2	41.4	1	23,363	35	667.5	19.0	208,921
Paloma	[2]2	0	0	0	0	[2]2	0	0	0	0	0
Poso Creek	63	213,646	9,701	22.0	85.1	73	253,393	11,145	22.7	83.0	4,112,500
Rio Bravo	83	2,136,560	10,261	208.2	68.3	92	2,400,651	11,679	205.6	69.0	12,726,066
Round Mountain	210	1,358,560	30,150	45.1	79.3	226	1,476,262	33,612	43.9	80.8	31,234,533
Semitropic Gas	[2]9	0	0	0	0	[2]9	0	0	0	0	0
Strand	9	253,992	1,230	206.5	75.5	12	293,265	1,600	183.3	72.5	1,215,356
Ten Section	96	2,391,921	15,409	155.2	88.7	99	2,840,232	15,551	182.6	85.4	15,592,142
Trico Gas	[2]18	0	0	0	0	[2]16	0	0	0	0	0
Wasco	13	312,818	1,932	161.9	82.1	13	318,030	2,107	150.9	88.1	1,724,153
Wheeler Ridge	34	52,042	5,798	9.0	94.2	34	51,963	6,145	8.5	98.2	3,944,841
Kern County	1	3,033	179	16.9	98.9	2	18,965	237	80.0	64.4	115,101
Tulare County	0	0	0	0	0	1	200	20	10.0	10.9	26,284
Totals	6,635	31,802,809	1,039,473	30.6	86.6	7,167	33,826,326	1,154,572	29.3	87.5	1,823,114,661

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TABLE G—Continued

Production Statistics and Operating Data of California Oil Fields—1941

Field	January 1 to June 30					July 1 to December 31					
	Average number of producing wells—actual	Oil (bbls.)	Number of days producing	Production per well per day (bbls.)	Percentage of time wells produced	Average number of producing wells—actual	Oil (bbls.)	Number of days producing	Production per well per day (bbls.)	Percentage of time wells produced	Cumulative production of oil (bbls.) to end 1941
Dist. 5—Coalinga	788	1,950,640	127,386	15.3	89.3	849	2,600,176	138,365	18.8	88.6	364,924,357
East Coalinga Extension	168	4,322,227	18,377	235.2	60.4	200	5,187,534	23,802	217.9	64.7	18,250,328
Eureka Gas	[2]1	0	0	0	0	[2]2	0	0	0	0	0
Kettleman Middle Dome	0	0	0	0	0	0	0	0	0	0	548,562
Kettleman North Dome	272	6,994,280	40,900	171.0	83.1	275	6,961,905	42,749	162.9	84.5	252,522,833
Marysville Buttes Gas	[2]4	0	0	0	0	[2]4	0	0	0	0	0
McDonald Island Gas	[2]4	0	0	0	0	[2]5	0	0	0	0	0
Raisin City						4	62,270	439	141.8	59.6	62,716
Rio Vista Gas	[2]20	0	0	0	0	[2]25	0	0	0	0	0
Tracy Gas	[2]3	0	0	0	0	[2]2	0	0	0	0	0
Fresno County	2	2,924	246	11.9	68.0	2	9,933	282	35.2	76.6	14,206
Glenn County—Willows Area	[2]0	0	0	0	0	0	0	0	0	0	0
Kings County	0	0	0	0	0	1	177	10	17.7	5.4	4,039
Madera County—Chowchilla Area	[2]0	0	0	0	0	[2]1	0	0	0	0	0
San Joaquin County—Vernalis Area	[2]0	0	0	0	0	0	0	0	0	0	0
Solano County—Potrero Hills Area	[2]0	0	0	0	0	0	0	0	0	0	0
Sonoma County—Petaluma Area	0	0	0	0	0	0	0	0	0	0	3,3040
Stanislaus County—Vernalis Area	[2]1	0	0	0	0	0	0	0	0	0	0
Yolo County—Fairfield Knolls Area	[2]0	0	0	0	0	[2]2	0	0	0	0	0
Totals	1,230	13,270,071	186,909	71.0	84.0	1,331	14,821,995	205,647	72.1	84.0	636,330,345
Grand totals	15,627	111,480,869	2,508,730	44.4	88.7	16,515	118,183,910	2,707,439	43.7	89.1	5,820,899,152

[1] Includes wells capable of production which were shut down on account of overproduction.
[2] Gas wells omitted from totals.

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Proved Oil Land

The total proved oil land and natural gas land in California as of January 1, 1942 is 199,245 acres; an increase of 12,269 acres during the year 1941, according to data furnished by the Division of Oil and Gas. The acreage as of January 1, 1941 and January 1, 1942, by counties, is given in the following table H:

TABLE H

Proved Oil and Natural Gas Land

County	*Acres January 1, 1941*	*Acres January 1, 1942*
Contra Costa	------	160
Fresno	21,987	22,637
Humboldt	------	400
Imperial	130	203
Kern	91,932	95,695
Kings	8,144	8,214
Los Angeles	17,205	18,291
Orange	6,359	6,504
Sacramento	3,510	9,640
San Bernardino	10	------
San Joaquin	1,370	1,370
San Luis Obispo	390	280
Santa Barbara	17,036	16,453
Santa Clara	80	80
Solano	7,190	7,390
Sutter	------	320
Tulare	4,320	4,320
Ventura	7,313	7,288
Totals	186,976	199,245

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CHAPTER THREE

METALS

Bibliography: Reports of State Mineralogist I-XXXVIII (inc.). Bulletins 5, 6, 18, 23, 27, 36, 50, 57, 76, 78, 85, 92, 95, 108. Spurr and Wormser, "Marketing of Metals and Minerals." See also under each metal.

The value of metals produced in California during 1941 amounted to $61,595,912, compared with $59,949,838 in 1940. Chief among these is, as to value and always has been, gold followed in turn by quicksilver, tungsten ore, silver, copper, lead, chromite, iron ore, molybdenum ore, manganese ore, zinc, platinum metals, antimony, and titanium.

A comparison of the 1940 output with that of 1941 is afforded by the following table:

Substance	1940		1941		Increase+ Decrease— Value
	Amount	Value	Amount	Value	
Antimony	56,854 lbs.	$7,958	19,153 lbs.	$2,537	$5,421—
Chromite	2,599 tons	32,796	15,453 tons	355,354	322,558+
Copper	12,833,363 lbs.	1,450,170	8,101,449 lbs.	955,970	494,200—
Gold	1,455,670 fine ozs.	50,948,485	1,408,793 fine ozs.	49,307,755	1,640,730—
Lead	3,092,636 lbs.	154,632	6,900,851 lbs.	393,348	238,716+
Manganese	134 tons	3,260	3,183 tons	75,057	71,797+
Platinum metals	1,358 fine ozs.	62,419	909 fine ozs.	40,590	21,829—
Quicksilver	18,907 flasks	3,209,754	25,612 flasks	4,509,041	1,299,287+
Silver	2,359,776 fine ozs.	1,678,063	2,154,188 fine ozs.	1,531,867	146,196—
Tungsten	107,022 units	2,267,135	171,672 units	4,080,628	1,813,493+
Zinc	183,088 lbs.	11,472	880,612 lbs.	66,046	54,574+
Unapportioned		[b]123,694		[b]277,719	154,025+
Total values		$59,949,838		$61,595,912	
Net increase					$1,646,074+

[b] Includes iron ore, molybdenum and titanium.

ALUMINUM

Bibliography: Report XVIII, p. 198, XXXVII. Bulletins 38, 67. U. S. Geol. Surv., Min. Res. of U. S.

To date there has been no commercial production of aluminum ore in California. Only a single authenticated occurrence of bauxite has thus far been noted in this state, being in Riverside County southeast of Corona, but as yet undeveloped.

Minerals containing aluminum are abundant, the most widely distributed being the clays. There are only two, however, thus far of consequence commercially, in the production of the metal: bauxite (to which may be added the related hydrated oxides, hydrargillite and diaspore) and cryolite. Cryolite is found in commercial quantities only in south Greenland, and was formerly the only ore of aluminum used, being still employed as a flux in the extraction of the metal. Bauxite has been for some years the most important source of aluminum and its salts. Its color varies from gray to red, according to the amount of iron

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present, the composition ranging usually between the following limits: Al_2O_3, 30%–60%; Fe_2O_3, 3%–25%; SiO_2, 0.5%–20%; TiO_2, 0.0–10%. Besides its reduction to the metal bauxite is also utilized in the manufacture of aluminum salts, refractories, alundum (fused alumina) for use as an abrasive, and in the refining of oil.

ANTIMONY

Bibliography: State Mineralogist Reports VIII, X, XII-XV (inc.), XVII, XXII, XXIII, XXV-XXVII (inc.), XXXI, XXXIV, XXXVI. Bulletins 38, 91.

During 1941 there were shipments of antimony ore from California from properties in Inyo, Kern, San Benito, and San Bernardino counties, amounting to 19.153 pounds of recoverable metal, worth $2,537. This was a decrease in both amount and value as compared with the 1940 output, which was 56,845 pounds of antimony, worth $7,958.

Pure antimony metal and manufactured antimony compounds are of considerable importance as pigments in the ceramic industry. The most important use of the metal, commercially, is in various alloys, particularly type-metal (with tin and lead), babbitt (with tin and copper), and britannia metal (with tin and copper). An alloy of 6% antimony and 94% lead is being extensively used in making battery plates for storage batteries for automobiles, airplanes and radio apparatus.

Present New York quotations (June 11, 1942) are around 16.5¢ per pound for Chinese (duty paid) and 16.013¢ for domestic antimony.

Antimony Production in California, by Years.

The production of antimony ore in California by years since 1887 has been as follows:

Year	Tons	Value	Year	Tons	Value
1887	75	$15,500	1915	510	$35,666
1888	100	20,000	1916	1,015	64,793
1889			1917	158	18,786
1893	50	2,250	1918		
1894	150	6,000	1925	[a]26	770
1895	33	1,485	1926		
1896	17	2,320	1927	20	590
1897	20	3,500	1928	20	761
1898	40	1,200	1929		
1899	75	13,500	1939	150	4,552
1900	70	5,700	1940	[a]28	7,958
1901	50	8,350	1941	[a]10	2,537
1902			Totals	2,617	$216,227

[a] Annual details concealed under 'Unapportioned.'

[a] Beginning 1940, amount of recoverable metal; before, tons of antimony ore shipped.

ARSENIC

Bibliography: Reports XVIII, XXIII, XXV, XXX, XXXIII, XXXV. Bulletin 67. U. S. G. S., Min. Res. of U. S.

Arsenic is found in a number of localities in California in the mineral arsenopyrite (FeAsS), which is frequently gold bearing; and in scorodite ($FeAsO_4+2H_2O$), an oxidation product of arsenopyrite. The occurrence of realgar (AsS) has also been noted.

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Except for a small output in 1924, there has been no commercial recovery of arsenic from California ores. There having been only a single operator, the figures are concealed under the 'Unapportioned' item.

BERYLLIUM

Bibliography: State Mineralogist Report XXVII, XXXV, XXXVI. Eng. & Min. Jour.-Press, Vol. 118, No. 8, p. 285, Aug. 23, 1924. U. S. Bureau of Mines Information Circular 6190.

Beryllium is a metal resembling aluminum closely in its chemical character. It has a specific gravity of 1.85, is almost as hard as quartz (will scratch glass) and will take a high polish. The use of beryllium as a metal is still more or less in the experimental stage because the cost of extracting the metal from its ores almost makes it prohibitive and the present sources of supply of the ore are limited. Not until such a time when deposits can be found that will assure a definite supply and metallurgical costs are such as to justify its use, will the metal be found in common use.

There are a number of berryllium minerals, but none have been found in commercial quantities, except beryl, which is a beryllium-aluminum silicate. The chief use at present for ground beryl is as an addition to porcelain products, where it reduces the coefficient of expansion. Beryllium metal is difficult to separate from aluminum.

Present (June 11, 1942) quotations for beryllium ore are per ton in carload lots, minimum 10 per cent BeO, $30; minimum 12 per cent BeO, $35, f.o.b. mine.

Beryl occurs in California in the pegmatite dikes of the tourmaline gem district in northern San Diego and northwestern Riverside counties; and an occurrence has recently been noted in western Inyo County, but the quantity is as yet unproved. Thus far there have been no commercial shipments of beryl from California except for gem purposes (the pink and aquamarine varieties).

BISMUTH

Bibliography: State Mineralogist Report XXXV. Bulletins 38, 67, 91. Am. Jour. Sci., 1903, Vol. 16.

Several bismuth minerals have been found in California, notably native bismuth and bismite (the ochre) in the tourmaline gem district in San Diego and Riverside counties near Pala. Other occurrences of bismuth minerals, including the sulphide, bismuthinite, have been noted in Inyo, Fresno, Nevada, Tuolumne, San Bernardino, and Mono counties, but only in small quantities. The only commercial production recorded was 20 tons valued at $2,400 in 1904, and credited to Riverside County.

The uses of bismuth are somewhat restricted, being employed principally in the preparation of medicinal salts, and in low melting-point or cliché alloys. These alloys are utilized in automatic fire sprinkler systems, in electric fuses, and in solders.

The present quotation (June 11, 1942) for bismuth is $1.25 per pound, in ton lots for the refined metal.

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CADMIUM

Bibliography: U. S. Geol. Surv., Min. Res. of U. S., 1908, 1918.

During 1917 and 1918, cadmium metal was recovered by the electrolytic zinc plant of the Mammoth Copper Company in Shasta County. It was shipped in the form of 'sticks' and amounted to a total of several thousand pounds for the two years, the exact figures being concealed under 'Unapportioned.' That was the first, and thus far the only, commercial production of cadmium recorded from California ore. Cadmium occurs there associated with zinc sulphide, sphalerite. Cadmium also occurs in the Cerro Gordo Mines, Inyo County, associated with smithsonite (zinc carbonate).

Cadmium is produced in the United States in two forms—metallic cadmium and the pigment, cadmium sulphide. The principal use of the metal is in low-melting point, or cliché alloys, and its salts are utilized in the arts, medicine, and in electroplating. The sulphide is employed as a paint pigment, being a strong yellow, which is unaffected by hydrogen sulphide gas from coal smoke. It is also employed in coloring glass and porcelain. Cadmium cliché metal is stated to be superior to the corresponding bismuth alloy, for making stereotype plates. Cadmium is also used in bronze telegraph and telephone wires, and gives some promise of being utilized in electroplating.

The present quotation (June 11, 1942) for cadmium is 90¢ per pound for the metal.

CHROMITE

Bibliography: State Mineralogist Reports IV, XII, XIII, XIV, XV, XVII, XVIII, XXI-XXIX (inc.), XXXI, XXXIV-XXXVIII (inc.). Bulletins 38, 76, 91. Preliminary Report 3. U. S. G. S., Bull. 430. Min. & Sci. Press, Vol. 114, p. 552.

During 1941 shipments of chromite or chromite-iron ore in California amounted to 15,453 long tons, (17,307 short tons) recalculated to a basis of 45% Cr_2O_3 and valued at $355,354. The above came from 10 properties in Placer County; four each in Del Norte and Plumas counties; three in Calaveras County; two each in El Dorado, Fresno, Shasta, Siskiyou, and Trinity counties; and one each in Humboldt, Napa, San Luis Obispo, Sierra, and Tuolumne counties; and did not include properties that mined ore but did not make shipments during the year. The 1941 totals showed increases in both amount and value over those of 1940, which were 2,321 long tons, recalculated to 45% Cr_2O_3 and worth $32,769, and was the largest annual output since 1919.

Occurrence.

Chromite is widely distributed in California, the principal production, thus far, having come from El Dorado, San Luis Obispo, Del Norte, Shasta, Siskiyou, Placer, Fresno, and Tuolumne counties. In 1918 a total of 29 counties contributed to the State's output. There are two main belts in California yielding this mineral, one along the Coast Ranges from San Luis Obispo County to the Oregon line, including the Klamath Mountains at the north end, and the other in the

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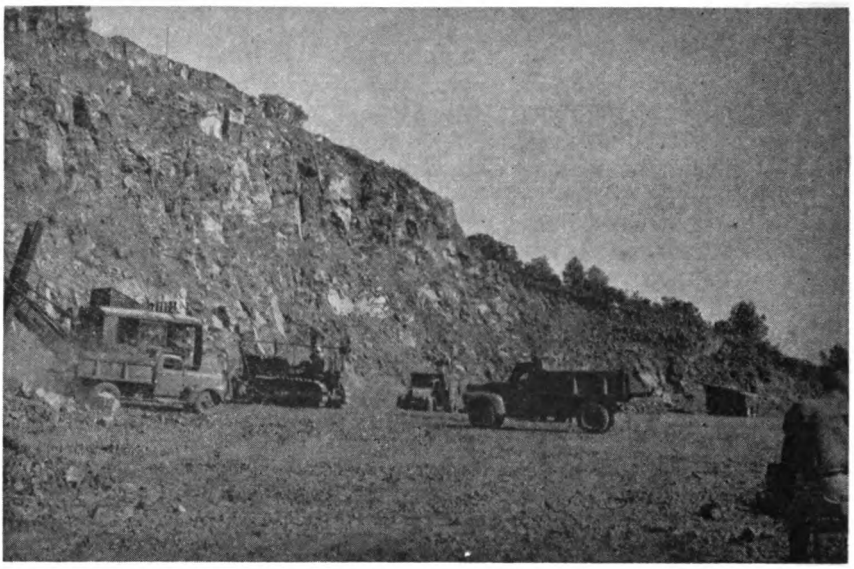

Photo by Olaf P. Jenkins

FIG. 1. Open pit, Grey Eagle chrome mine, Glenn County.

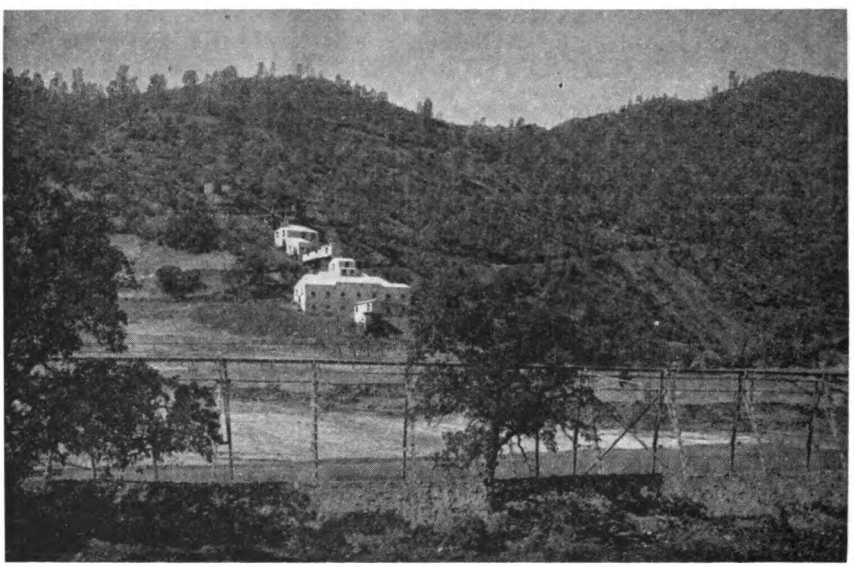

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FIG. 2. Mill, Grey Eagle chrome mine, Rustless Mining Corporation, Glenn County.

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Sierra Nevada from Tulare County to Plumas County. Chromite occurs as lenses in basic igneous rocks such as periodotite and pyroxenite, and in serpentines which have been derived by alteration of such basic rocks.

Uses.

The major consumption of chromite ore is for use as a refractory lining in smelting furnaces for steel and copper. A smaller portion is used in the preparation of ferrochrome for chrome-steel alloys, and of chromium chemicals, the latest development of which is chrome plating as used in the automobile industry, on ships, and in oil refineries to protect metal surfaces from wear and erosion.

Total Chromite Production of California.

Production of chromite in California began, apparently in the period 1869-1873 in Del Norte County, followed by San Luis Obispo in 1874. There was considerable activity in San Luis Obispo from 1880 to 1883, inclusive, and a total of 23,238 long tons (or 26,028 short tons) valued at $329,924 was shipped from that county up to the beginning of 1887. There are records of shipments from Sonoma County (before 1883), Placer County (1883 and 1884), and Calaveras County. Apparently the state's total in the period 1869-1883 was some 45,000 tons.[1] The tabulation herewith shows the output of chromite in California annually, including the earliest figures so far as they are available. The figures from 1887 to date are from the records of the State Mining Bureau:

Year	Tons	Value	Year	Tons	Value
1869-1883			1912	1,270	11,260
Del Norte County, Sonoma County, Placer County, Calaveras County	19,000	$239,400	1913	1,180	$12,700
			1914	1,517	9,434
			1915	3,725	38,044
1874-1887 (San Luis Obispo County)	26,028	329,924	1916	48,943	717,244
			1917	52,379	1,130,298
1887	3,000	40,000	1918	73,955	3,649,497
1888	1,500	20,000	1919	*4,314	97,164
1889	2,000	30,000	1920	1,770	43,031
1890	3,599	53,985	1921	347	6,870
1891	1,372	20,580	1922	379	6,334
1892	1,500	22,500	1923	84	1,658
1893	3,319	49,785	1924	350	6,700
1894	3,680	39,980	1925	191	3,712
1895	1,740	16,795	1926	393	7,063
1896	786	7,775	1927	225	5,063
1897			1928	729	15,179
1898			1929	327	5,025
1899			1930	84	1,905
1900	140	1,400	1931	441	6,737
1901	130	1,950	1932, 1933 [a]	1,206	16,587
1902	315	4,725	1934	294	3,498
1903	150	2,250	1935	488	6,111
1904	123	1,845	1936	221	3,314
1905	40	600	1937	1,918	20,830
1906	317	2,859	1938	982	10,864
1907	302	6,040	1939	3,936	52,673
1908	350	6,195	1940	2,599	32,796
1909	436	5,309	1941	17,307	355,354
1910	749	9,707			
1911	935	14,197	Totals	293,067	$7,205,296

* Recalculated to 45% Cr_2O_3 beginning with 1919.

[a] Included under 'Unapportioned.'

[1] Day, D. T., Mineral Res. of the U. S. 1883-1884, U. S. G. S., pp. 569, 570, 1885.

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COBALT

Bibliography: Report XIV, XXXIII, XXXIV, XXXVII. Bulletins 67, 91. U. S. G. S., Min. Res. of U. S., 1912, 1918. U. S. B. M., I.C. 6331.

Occurrences of some of the cobalt minerals have been noted in several localities in California, but to date no commercial production has resulted. Some of the copper ores of the foothill copper belt in Mariposa and Madera counties have been found to contain cobalt up to 3%.

The nominal quotation for cobalt (June 11, 1942) is around 97 to 99% at $2.11 per pound for the refined metal.

The most important use of cobalt is in the manufacture of the alloy, stellite, in which it is combined with chromium, for making high-speed lathe tools, and non-tarnishing cutlery and surgeons' appliances. The metal is also used in electroplating, similarly to nickel; and the oxide, carbonate, chloride, sulphate and other salts are used in ceramics for coloring. Some of the organic salts of cobalt (acetate, resinate, oleate) are employed as 'driers' in paint and varnish.

COPPER

Bibliography: State Mineralogist Reports VIII-XXXVIII (inc.). Bulletins 23, 50, 91.

The total output of copper in California during 1941 amounted to 8,101,449 pounds of recoverable metal valued at $955,970. This was a decrease in amount and value as compared with the 1940 output which was 12,833,363 pounds worth $1,450,170. The average price of copper during 1941 was 11.8¢ per pound compared with 11.3¢ per pound in 1940; 10.4¢ per pound in 1939; 9.8¢ in 1938; 12.1¢ in 1937; 9.2¢ in 1936; 8.3¢ in 1935; and 8.0¢ in 1934.

Copper was second to gold among the metals in California from 1896 to 1932, when it was passed in output by quicksilver and silver, and in 1933 also by tungsten, in 1936 and 1937 by silver only, and in 1938-1941 (inc.) by silver, quicksilver and tungsten.

Distribution of the 1941 output of copper in California by counties was as follows:

County	Pounds	Value
Amador	11,941	$1,409
Calaveras	7,076	835
Inyo	281,211	33,183
Kern	5,164	609
Mariposa	5,908	697
Napa	2,406	284
Nevada	24,617	2,905
Placer	9,383	1,107
Plumas	7,510,414	886,229
San Bernardino	111,077	13,107
Shasta	116,412	13,737
Tuolumne	9,177	1,083
Butte, El Dorado, Fresno, Imperial, Lassen, Los Angeles, Mono, Orange, Sacramento, Sierra, Siskiyou, Trinity*	6,713	785
Totals	8,101,449	$955,970

* Combined to conceal the output of individual producers in each.

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According to preliminary data issued by the U. S. Bureau of Mines[1] the smelter production of primary copper from domestic sources during 1941 amounted to 1,932,144,953 pounds, an increase of approximately 6 percent compared with the 1940 output. The value of copper increased approximately 11 percent in 1941. The average price of copper delivered during the year, as reported to the U. S. Bureau of Mines by selling agents was 11.8¢ per pound.

Copper Production of California, by Years.

Although some mining of copper ores in a small way had been done earlier, shipments in appreciable quantities began in 1861 and continued of importance up to the end of 1867, when a total of 68,631 tons (of 2376 pounds) of high-grade ores, and 847 tons of matte or 'regulus'[2] had been shipped to smelters at New York, Boston, and Swansea, Wales. The most important district at that time was Copperopolis and vicinity in Calaveras County, with some shipments also made from Mariposa, El Dorado, Fresno and San Luis Obispo counties. From 1868 to 1882, the output was insignificant. There are wide discrepancies in the figures recorded for copper production previous to 1882, in which year the data of the U. S. Geological Survey began. The detailed statistics of the California State Mining Bureau began in the year 1894.

Amount and value of copper production in California annually since 1882 is given in the following tabulation:

Copper Production of California, by Years

Year	Pounds	Value	Year	Pounds	Value
1882	826,695	$144,672	1912	34,169,997	$5,638,049
1883	1,600,862	265,743	1913	34,471,118	5,343,023
1884	876,166	120,911	1914	30,491,535	4,055,375
1885	469,028	49,248	1915	40,968,966	7,169,567
1886	430,210	43,021	1916	55,809,019	13,729,017
1887	1,600,000	192,000	1917	48,534,611	13,249,948
1888	1,570,021	235,303	1918	47,793,046	11,805,883
1889	151,505	18,180	1919	22,162,605	4,122,246
1890	23,347	3,502	1920	12,947,299	2,382,303
1891	3,397,405	424,675	1921	12,088,053	1,559,358
1892	2,980,944	342,808	1922	22,883,987	3,090,582
1893	239,682	21,571	1923	28,346,860	4,166,989
1894	738,594	72,486	1924	52,089,349	6,823,704
1895	225,650	21,901	1925	46,968,499	6,669,527
1896	1,992,844	199,599	1926	33,521,544	4,693,014
1897	13,638,626	1,540,666	1927	27,350,316	3,582,888
1898	21,543,229	2,475,168	1928	25,162,304	3,623,360
1899	23,915,486	3,990,534	1929	33,809,258	5,941,799
1900	29,515,512	4,748,242	1930	26,534,752	3,449,522
1901	34,931,788	5,501,782	1931	12,954,842	1,178,890
1902	27,860,162	3,239,975	1932	1,417,536	89,307
1903	19,113,861	2,520,997	1933	992,515	63,521
1904	29,974,154	3,969,995	1934	590,638	47,252
1905	16,997,489	2,650,605	1935	2,031,836	168,645
1906	28,726,448	5,522,712	1936	9,991,799	919,245
1907	32,602,945	6,341,387	1937	10,512,500	1,272,013
1908	40,868,772	5,350,777	1938	1,613,491	158,122
1909	65,727,736	8,478,142	1939	8,390,215	872,582
1910	53,721,032	6,680,641	1940	12,833,363	1,450,170
1911	36,838,024	4,604,753	1941	8,101,449	955,970
			Totals	1,198,530,519	$188,043,787

[1] U. S. Bureau of Mines Mineral Market Report M. M. S. 1,000, May 29, 1942.

[2] Browne, J. Ross, Mineral Resources West of the Rocky Mountains, p. 168, 1867.

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GOLD

Bibliography: State Mineralogist Reports I to XXXVIII (inc.), (except III and VIII). Bulletins 36, 45, 57, 91, 92, 95, 108. U. S. Geol. Surv., Prof. Paper 73. U. S. Bur. of Mines, Econ. Paper 3 (1929).

Gold was first, and, for many years, the most important single mineral product of California. Although now surpassed for a number of years in annual value by petroleum, and by natural gas from 1923 to 1932, it still heads our metal list, and California continues to outrank all the other gold-producing States of the United States, including Alaska. In fact, at present, California is producing approximately 25% of the gold mined in the entire United States.

There was a steady increase in the output of both lode and placer mines in California from 1928 to 1941, but in 1941 the value of placer production continued to increase, although that of lode dropped off 8 percent. During 1941 there were 1559 operating properties in California, compared with 1866 in 1940, these did not include snipers, prospectors, and various individuals selling gold in small lots to the bullion dealers.

The production of gold in California during 1941 totaled 1,408,793 fine ounces valued at $49,307,755, being a decrease of 46,878 fine ounces from the 1940 yield, which was 1,455,671 fine ounces worth $50,948,485. Deep or lode mines accounted for 690,780 fine ounces worth $24,177,-300; and placers (mainly bucket line, dragline, and power shovel dredges) produced 718,013 fine ounces worth $25,130,455.

The 1940 output was the largest in value since 1856 and in amount since 1862. The 1939 lode output of gold was undoubtedly the largest in the history of the State.

As the Division of Mines has never independently gathered the statistics of gold and silver production, these figures, as in former years, are published by cooperation with and through the courtesy of Charles White Merrill and H. M. Gaylord of the Division of Mineral Statistics, U. S. Bureau of Mines.

The largest production of gold by counties was reported by Nevada County with an output of 282,065 fine ounces ($9,872,275); followed by Sacramento County second with 179,645 fine ounces ($6,287,575); Amador County third with 99,980 fine ounces ($3,499,300); Yuba County fourth with 88,923 fine ounces ($3,112,305); followed in turn by Butte, Kern, Calaveras, Siskiyou, Shasta, Merced, El Dorado, Trinity, Placer, Plumas, Mariposa counties, all with total gold yields having a value in excess of a million dollars.

The gold from Nevada, Amador, and Kern counties is mainly from the lode or deep mines; while that from Butte, Sacramento, and Yuba counties is almost entirely from dredges, and that from Calaveras County is about equally divided between lode mines and dredges.

* U. S. Bureau of Mines, Mineral Year Book Review of 1941 (chapter reprint), Gold, Silver, Copper, Lead, and Zinc in California, pp. 4-5.

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Distribution for the 1941 gold output by counties was as follows:

Counties	Mines Producing[1]		Totals	
	Lode	Placer	Fine Ounces	Value
Alpine	1		136	$4,760
Amador	23	40	99,980	3,499,300
Butte	14	52	85,174	2,981,090
Calaveras	43	61	74,668	2,613,380
Del Norte		1	39	1,365
El Dorado	50	44	44,218	1,547,630
Fresno	5	7	6,116	214,060
Humboldt		6	382	13,370
Imperial	10	2	2,479	86,765
Inyo	71	4	16,096	563,360
Kern	97	11	80,028	2,800,980
Lassen	6		61	2,135
Los Angeles	9	4	5,171	180,985
Madera	12	20	1,497	52,395
Mariposa	53	30	32,602	1,141,070
Merced		8	44,313	1,550,955
Mono	36	1	9,505	332,675
Monterey	1		17	595
Napa	1		350	12,250
Nevada	32	32	282,065	9,872,275
Orange	1		18	630
Placer	24	59	41,193	1,441,755
Plumas	25	29	36,256	1,268,960
Riverside	31	3	1,698	59,430
Sacramento	2	20	179,345	6,287,575
San Bernardino	117	10	16,947	593,145
San Diego	7		301	10,535
San Francisco		[2]	19	665
San Joaquin		10	23,741	830,935
San Luis Obispo		1	9	315
Santa Cruz		[2]	9	315
Shasta	26	32	49,136	1,719,760
Sierra	17	39	27,362	957,670
Siskiyou	50	93	67,194	2,351,790
Stanislaus		7	25,472	891,520
Trinity	18	67	42,882	1,500,870
Tulare	3		75	2,625
Tuolumne	42	10	22,997	804,895
Ventura	2	2	19	665
Yuba	6	19	88,923	3,112,305
Totals	835	724	1,408,793	$49,307,755

[1] Excludes itinerant prospectors, snipers, high graders, and others who gave no evidence of legal right to property.

[2] Output from property not classed as a "mine."

The following is quoted from the advance statement of gold in 1940 by courtesy of the U. S. Bureau of Mines,* Department of Commerce:

Gold: After an uninterrupted rise from 1929 to 1940, the quantity and value of California gold production in 1941 fell below that of 1940. The reversal in trend was due entirely to the decline in lode mining; placer-gold output continued to rise and exceeded that for any year since 1862.

The 25 leading gold-producing mines in California in 1941, listed in the following table, yielded 54 percent of the total gold output of the State. In 1941, three lode mines (gold ore) and two placers (connected-bucket dredges) displaced two lode mines (gold ore) and three placers (two connected-bucket dredges and one dragline dredge) which were on the 1940 list; of those displaced, one connected-bucket dredge and the dragline-dredge operations were reported worked out and one of the lode operations lost its identity by merger with its neighbor."

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Twenty-five leading gold-producing mines in California in 1941, in order of output:

Rank	Mine	District	County	Rank in 1940	Operator	Source of gold
1	Idaho Maryland-Brunswick	Grass Valley-Nevada City	Nevada	1	Idaho Maryland Mines Corp.	Gold ore
2	Natomas Co.	Folsom	Sacramento	3	Natomas Co.	Dredge
3	Empire Star Mines	Grass Valley-Nevada City	Nevada	2	Empire Star Mines Co., Ltd.	Gold ore
4	Yuba Unit	Yuba River	Yuba	4	Yuba Consolidated Gold Fields	Dredge
5	Lava Cap	Grass Valley-Nevada City	Nevada	5	Lava Cap Gold Mining Corp.	Gold ore
6	Butte Unit	Oroville	Butte	6	Yuba Consolidated Gold Fields	Dredge
7	Central Eureka	Mother Lode	Amador	7	Central Eureka Mining Co.	Gold ore
8	Capital Dredges	Folsom	Sacramento	8	Capital Dredging Co.	Dredge
9	Golden Queen	Mojave	Kern	12	Golden Queen Mining Co.	Gold ore
10	Carson Hill	Mother Lode	Calaveras	9	Carson Hill Gold Mining Corp.	Gold ore
11	Argonaut	Mother Lode	Amador	11	Argonaut Mining Co.	Gold ore
12	Alabama	Ophir	Placer	15	Alabama California Gold Mines Co.	Gold ore
13	Cactus Queen	Mojave	Kern	13	Cactus Mines Co.	Gold ore
14	Sliger	Mother Lode	El Dorado	23	Middle Fork Gold Mining Co.	Gold ore
15	Sheepranch	East Belt	Calaveras	10	St. Joseph Lead Co.	Gold ore
16	Snelling	Snelling	Merced	16	Snelling Gold Dredging Co.	Dredge
17	Original Sixteen to One	Alleghany	Sierra	19	Original Sixteen to One Mine, Inc.	Gold ore
18	Iron Mountain	Flat Creek (Iron Mountain)	Shasta	14	The Mountain Copper Co., Ltd.	Gold ore and Copper ore
19	Walker	Genesee	Plumas	17	Walker Mining Co.	Copper ore
20	Ohio Point (Virgilia)	Rich Bar	Plumas	30	Virgilia Mining Corp.	Gold ore
21	Keystone	Mother Lode	Amador	27	Keystone Mine Syndicate	Gold ore
22	Surcease	Yankee Hill	Butte	36	Hoefling Bros.	Gold ore
23	Merced Dredge	Snelling	Merced	28	Merced Dredging Co.	Dredge
24	Putnam Property	Camanche	San Joaquin	82	Gold Hill Dredging Co.	Dredge
25	Siskiyou Unit	Callahan	Siskiyou	20	Yuba Consolidated Gold Fields	Dredge

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Total Gold Production of California.

The presence of gold in stream gravels near Los Angeles was known and worked in a small way by the Indians, at least as early as 1841,[1] and possibly 1820.[2] On March 2, 1844, Don Manuel Castanares, deputy for California to the Congress of Mexico, reported [3] to his government that placers near Los Angeles had produced up to December, 1843, a total of 2000 ounces of gold dust, most of which had been sent to the United States Mint at Philadelphia.

As the padres and the rancheros discouraged the quest of gold, this early, small production caused no particular excitement. It was not until James W. Marshall's finding of gold nuggets in the tail-race of Sutter's saw mill on the American River, January 24, 1848, was heralded abroad that the great rush began, and California became a commonwealth of first rank almost over night. There are, however, no authentic data on gold production prior to 1848, other than occasional, scattered references such as above quoted.

The following table was originally compiled by Chas. G. Yale, of the Division of Mineral Resources, U. S. Geological Survey, but for a number of years statistician of the California State Mining Bureau and the U. S. Mint at San Francisco. The authorities chosen for certain periods were: J. D. Whitney, State Geologist of California; John Arthur Phillips, author of "Mining and Metallurgy of Gold and Silver" (1867); U. S. Mining Commissioner R. W. Raymond; U. S. Mining Commissioner J. Ross Browne; Wm. P. Blake, Commissioner from California to the Paris Exposition, where he made a report on "Precious Metals" (1867); John J. Valentine, author for many years of the annual report on precious metals published by Wells, Fargo & Company's Express; and Louis A. Garnett, in the early days manager of the San Francisco refinery, where records of gold receipts and shipments were kept. Mr. Yale obtained other data from the reports of the director of the U. S. Mint and the director of the U. S. Geological Survey. The authorities referred to who were alive at the time of the original compilation of this table in 1894 were all consulted in person or by letter by Mr. Yale with reference to the correctness of their published data, and the final table quoted was then made up.

There was no premium paid on gold during 1932, the price being $20.67 a fine ounce. On August 29, 1933, there was an executive order lifting the embargo on gold ores, concentrates, precipitates, and unretorted amalgam, followed on October 25, 1933, by another order instructing the Reconstruction Finance Corporation to buy newly-mined gold at a price fixed by the U. S. Treasurer which corresponded to the world price, all of which had an effect on the 1933 gold yield. On January 30, 1934, the Gold Reserve Act of 1934 was passed, followed by the President's proclamation of January 31, 1934, which fixed the weight of the gold dollar at 15 5/21 grains, nine-tenths fine. The value of gold thereby became $35 a fine ounce. The average weighted value of gold per fine ounce in 1934 was $34.95.

[1] Hittell, T. H., History of California, Vol. II, p. 12, 1885.
[2] Bancroft, H. H., History of California, Vol. II, p. 417, 1886.
[3] Mercantile Trust Review of the Pacific, Vol. XIV, No. 2, p. 43, Feb. 15, 1925.

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The figures for 1903-1923 (inclusive) are those prepared by the U. S. Geological Survey; and since by the U. S. Bureau of Mines:

Total Gold Production of California, 1848 to 1941

Year	Fine ounces	Value	Year	Fine ounces	Value
1848	11,866	$245,301	1896	831,158	$17,181,562
1849	491,072	10,151,360	1897	767,779	15,871,401
1850	1,996,586	41,273,106	1898	769,476	15,906,478
1851	3,673,512	75,938,232	1899	741,881	15,336,031
1852	3,932,631	81,294,700	1900	767,390	15,863,355
1853	3,270,803	67,613,487	1901	821,845	16,989,044
1854	3,358,867	69,433,931	1902	818,037	16,910,320
1855	2,684,106	55,485,395	1903	788,544	16,300,653
1856	2,782,018	57,509,411	1904	901,484	18,633,676
1857	2,110,513	43,628,172	1905	914,217	18,898,545
1858	2,253,846	46,591,140	1906	906,182	18,732,452
1859	2,217,829	45,846,599	1907	809,214	16,727,928
1860	2,133,104	44,095,163	1908	907,590	18,761,559
1861	2,026,187	41,884,995	1909	979,007	20,237,870
1862	1,879,595	38,854,668	1910	953,734	19,715,440
1863	1,136,897	23,501,736	1911	954,870	19,738,908
1864	1,164,455	24,071,423	1912	953,640	19,713,478
1865	867,405	17,930,858	1913	987,187	20,406,958
1866	828,367	17,123,867	1914	999,113	20,653,496
1867	883,591	18,265,452	1915	1,085,646	22,442,296
1868	849,265	17,555,867	1916	1,035,745	21,410,741
1869	881,830	18,229,044	1917	971,733	20,087,504
1870	844,537	17,458,133	1918	799,588	16,528,953
1871	845,493	17,477,885	1919	807,667	16,695,955
1872	748,951	15,482,194	1920	692,297	14,311,043
1873	726,554	15,019,210	1921	759,721	15,704,822
1874	835,186	17,264,836	1922	709,678	14,670,346
1875	816,377	16,876,009	1923	647,210	13,379,013
1876	755,169	15,610,723	1924	636,140	13,150,175
1877	798,249	16,501,268	1925	632,035	13,065,330
1878	911,343	18,839,141	1926	576,798	11,923,481
1879	949,439	19,626,654	1927	564,586	11,671,018
1880	968,986	20,030,761	1928	521,740	10,785,315
1881	929,920	19,223,155	1929	412,479	8,526,703
1882	829,458	17,146,416	1930	457,200	9,451,162
1883	1,176,329	24,316,873	1931	523,135	10,814,162
1884	657,900	13,600,000	1932	569,167	11,765,726
1885	612,478	12,661,044	1933	[a]613,579	15,683,075
1886	711,911	14,716,506	1934	[b]719,064	25,131,284
1887	657,349	13,588,614	1935	[c]890,430	31,165,050
1888	616,000	12,750,000	1936	1,077,442	37,710,470
1889	542,425	11,212,913	1937	1,174,578	41,110,230
1890	595,486	12,309,793	1938	1,311,129	45,889,515
1891	615,759	12,728,869	1939	1,435,264	50,234,240
1892	608,166	12,571,900	1940	1,455,671	50,948,485
1893	606,564	12,538,780	1941	1,408,793	49,307,755
1894	670,636	13,863,282			
1895	741,798	15,334,317	Totals	100,267,671	$2,211,416,186

[a] Value calculated at an average weighted price of $25.56 per fine ounce; previously $20.6718.
[b] Value calculated at an average weighted price of $34.95 per fine ounce.
[c] Value $35 per fine ounce, beginning 1935.

IRIDIUM (see under Platinum)

IRON ORE

Bibliography: State Mineralogist Reports II, IV, V, X, XII-XV (inc.), XVII, XVIII, XXI-XXVII (inc.), XXX, XXXI, XXXIII-XXXVI (inc.). Bulletins 38, 67, 91. Am. Inst. Min. Eng., Trans. LIII. Min. & Sci. Press, Vol. 115, pp. 112, 117-122; Vol. 123, pp. 94-96, 113-114.

During the year 1941 there were shipments of iron ore in California from one property each in Inyo, San Bernardino, and Santa Cruz counties; the annual details are concealed under the 'Unapportioned' item to conceal the output of individual producers. The 1941 output

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showed a large increase in both amount and value over the previous year and was the largest annual yield of this ore reported in the State. The 1940-1941 shipments totaled 54,707 short tons worth $194,362.

The material mined during the year was hematite from Inyo and San Bernardino counties, and magnetite sands from Santa Cruz County. The hematite was used mostly in high-iron cement with some going to foundries as a flux.

There are considerable deposits of iron ore known in California, notably in Shasta, Madera, Placer, Riverside, San Bernardino, and Los Angeles counties, but production has so far been limited for lack of an economic supply of coking coal. Some pig iron has been made, utilizing charcoal for fuel, both in blast furnaces and by electrical reduction; also, ferrochrome, ferromanganese, and ferrosilicon have been made in California.

Iron Ore Production in California, by Years.

Total iron ore production of California, with annual amounts and values, is as follows:

Year	Tons	Value	Year	Tons	Value
1881*	9,273	$79,452	1919	2,300	$13,796
1882	2,073	17,766	1920	5,975	40,889
1883	11,191	106,540	1921	1,970	12,030
1884	4,532	40,983	1922	3,588	18,868
1885			1923	3,102	18,665
1886	3,676	19,250	1924		
1887			1925	785	4,710
1893	250	2,000	1926		
1894	200	1,500	1927	5,272	26,000
1895			1928		
1907	400	400	1930		
1908			1931	100	700
1909	108	174	1932		
1910	579	900	1934		
1911	558	558	1935	38,339	163,714
1912	2,508	2,508	1936	31,084	155,434
1913	2,343	4,485	1937	5,490	29,340
1914	1,436	5,128	1938	27,878	141,406
1915	724	2,584	1939	16,990	77,788
1916	3,000	6,000	1940	54,707	194,362
1917	2,874	11,496	1941		
1918	3,108	15,947	Totals	246,293	$1,315,073

* Productions for the years 1881-1886 (inc.) were reported as "tons of pig iron" (U.S.G.S., Min. Res. 1885), and for the table herewith are calculated to "tons of ore" on the basis of 47.6% Fe as shown by an average of analyses of the ores (State Mineralogist Report IV, p. 242). This early production of pig iron was from the blast furnaces then in operation at Hotaling in Placer County. Charcoal was used in lieu of coke. Though producing a superior grade of metal, they were obliged finally to close down, as they could not compete with the cheaper English and eastern United States iron brought in by sea to San Francisco.

a Annual details concealed under 'Unapportioned.'

LEAD

Bibliography: State Mineralogist Reports IV, VIII-XV (inc.), XVII-XXVIII (inc.), XXX, XXXI, XXXIII-XXXVI (inc.).

The output of lead in California during 1941 amounted to a total of 6,900,851 pounds of recoverable metal valued at $393,348, compared with 3,092,636 pounds worth $154,632 in 1940. The average price of lead for 1941 was 5.7¢ per pound compared with 5.0¢ per pound in 1940; 4.7¢ per pound in 1939; 4.6¢ per pound in 1938; 5.9¢ per pound in 1937; 4.6¢ per pound in 1936; and 4.0¢ in 1935.

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Distribution of the 1941 output of lead by counties was as follows:

County	Pounds	Value
Amador	13,396	$764
Inyo	6,603,348	376,391
Kern	31,589	1,801
Mariposa	7,302	416
Mono	14,400	821
Nevada	10,234	583
Orange	10,196	581
Placer	43,573	2,484
Plumas	72,104	4,110
San Bernardino	78,991	4,502
Sierra	10,502	599
Butte, Calaveras, El Dorado, Los Angeles, Sacramento, Shasta, Siskiyou, Trinity, Tuolumne*	5,216	296
Totals	6,900,851	$393,348

* Combined to conceal the output of individual operators in each.

Lead Production of California, by Years.

Statistics on lead production in California were first compiled by this Bureau in 1887. Amount and value of the output, annually, with total figures, to date, are given in the following table:

Lead Production of California, by Years

Year	Pounds	Value	Year	Pounds	Value
1877	[a]7,836,000	$391,800	1910	3,016,902	$134,082
1878	8,640,000	328,320	1911	1,403,839	63,173
1879	4,502,000	191,335	1912	1,370,067	61,653
1880	4,200,000	215,460	1913	3,640,951	160,202
1881	6,680,000	325,316	1914	4,697,400	183,198
1882	[b]4,000,000	196,800	1915	4,796,299	225,426
1883	[c]3,400,000	145,520	1916	12,392,031	855,049
1884	3,200,000	120,512	1917	21,651,352	1,862,016
1885	2,000,000	80,900	1918	13,464,869	956,006
1886	2,000,000	93,400	1919	4,139,562	219,397
1887	[d]1,160,000	52,200	1920	4,903,738	392,300
1888	900,000	38,250	1921	1,149,051	51,707
1889	940,000	35,720	1922	6,511,280	358,120
1890	800,000	36,000	1923	9,934,522	695,416
1891	1,140,000	49,020	1924	4,984,387	398,751
1892	1,360,000	54,400	1925	7,352,422	639,661
1893	666,000	24,975	1926	8,067,873	645,429
1894	950,000	28,500	1927	2,748,440	173,151
1895	1,592,400	49,364	1928	1,882,795	109,102
1896	1,293,500	38,805	1929	1,428,777	90,014
1897	596,000	20,264	1930	3,542,796	176,241
1898	655,000	23,907	1931	3,934,240	145,568
1899	721,000	30,642	1932	2,418,626	72,480
1900	1,040,000	41,600	1933	772,463	28,583
1901	720,500	28,820	1934	804,911	29,655
1902	349,440	12,230	1935	1,142,405	45,695
1903	110,000	3,960	1936	1,098,545	50,533
1904	124,000	5,270	1937	2,402,110	141,724
1905	533,680	25,083	1938	1,003,096	46,142
1906	338,718	19,307	1939	1,061,294	49,880
1907	328,681	16,690	1940	3,092,636	154,632
1908	1,124,483	46,663	1941	6,900,851	393,348
1909	2,685,477	144,897			
			Totals	214,297,409	$12,424,264

[a] Quantities for 1877-1881 (inc.) from C. E. Siebenthal, Mineral Resources of U. S. 1912, Part I, U. S. Geol. Survey, p. 339; and values for same years from quotations in Eng. & Min. Jour. of New York.

[b] Estimated.

[c] Quantities and values for 1883-1886 (inc.) from Mineral Resources of U. S. Geol. Surv., 1883-1886, respectively.

[d] Data from 1887 to date from reports of California State Mining Bureau.

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Lead Production of the United States.

According to preliminary data issued by the U. S. Bureau of Mines[1] during 1941, the production of primary lead in the United States was 470,517 short tons valued at $53,639,000, being an increase over the national production of 1940, which was 433,065 short tons worth $43,307,000.

MANGANESE

Bibliography: State Mineralogist Reports XII-XV (inc.), XVIII, XXII-XXVII (inc.), XXIX-XXXI, XXXIII-XXXVIII (inc.). Bulletins 38, 67, 76, 91. U. S. G. S. Bull. 427. Eng. & Min. Jour.-Press, Vol. 117, p. 545.

Manganese ore shipped in California during 1941 amounted to 3,183 long tons (3,565 short tons), valued at $75,057 varying in grade from 32.47% Mn to 48.8% Mn, and included some battery grade ore. The above material came from four properties in Stanislaus County, two in San Bernardino County, and one each in Imperial, Plumas, and Trinity counties; and was utilized in the making of steel, in manganese chemicals, and in the manufacture of batteries; some of the ore was shipped to stock-piles for future consumption. The 1941 output was the largest since 1919, being a large increase in amount and value over that of 1940, which was 280 long tons, worth $3,260.

[1] U. S. Bureau of Mines, Mineral Market Notes 1008, July 10, 1942.

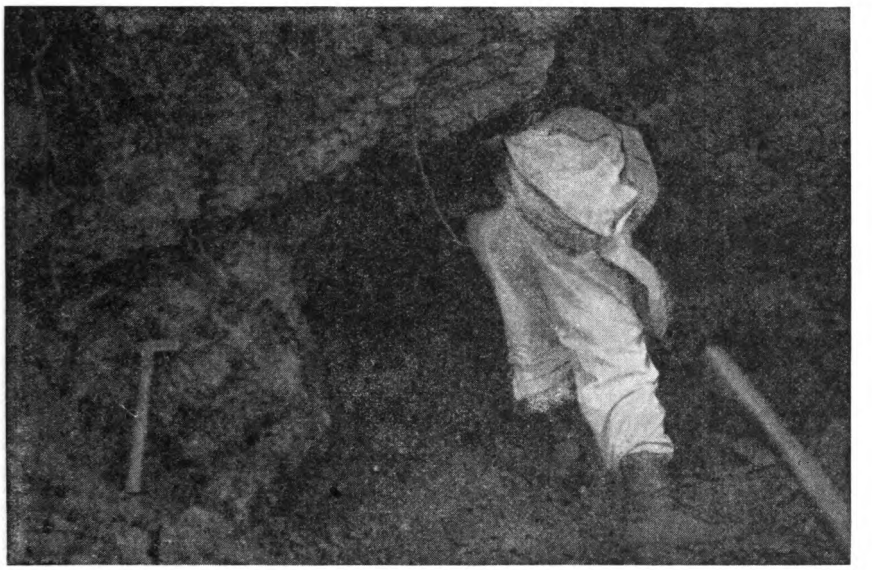

Photo by Olaf P. Jenkins

FIG. 3. Blue Jay manganese mine, five miles from Mad River, Trinity County.

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Manganese Ore Production in California, by Years.

Production of manganese ore in California began at the Ladd Mine, San Joaquin County, in the Tesla District in 1867. When shipments of this ore to England ceased late in 1874, upwards of 5000 tons had been produced by that property. For some years following that, the output was small. The tabulation herewith shows California's output of manganese ore, annually, since 1887, when the compilation of such figures was begun by the State Mining Bureau:

Year	Tons	Value	Year	Tons	Value
1887	1,000	$9,000	1913		
1888	1,500	13,500	1914	150	$1,500
1889	53	901	1915	4,013	49,098
1890	386	3,176	1916	13,404	274,601
1891	705	3,830	1917	15,515	396,659
1892	300	3,000	1918	26,075	979,235
1893	270	4,050	1919	11,569	451,422
1894	523	5,512	1920	2,892	62,323
1895	880	8,200	1921	1,005	12,210
1896	518	3,415	1922	540	7,650
1897	504	4,080	1923	690	10,620
1898	440	2,102	1924	1,115	25,785
1899	295	3,165	1925	832	19,450
1900	131	1,310	1926	235	4,700
1901	425	4,405	1927		
1902	870	7,140	1928	733	8,216
1903	1	25	1929		
1904	60	900	1930	207	2,576
1905			1931		
1906	1	30	1932		
1907	1	25	1934	432	4,630
1908	321	5,785	1935		
1909	3	75	1936		
1910	265	4,235	1939	6	45
1911	2	40	1940	314	3,206
1912	22	400	1941	3,565	75,057
			Totals	92,768	$2,377,338

* Annual details concealed under 'Unapportioned.'

MOLYBDENUM

Bibliography: State Mineralogist Reports XIV, XVII-XXIV (inc.), XXVI-XXVIII (inc.), XXX, XXXIV-XXXVI (inc.). Bulletins 67, 91. U. S. Bur. of Min., Bulletin 111. Proc. Colo. Sci. Soc., Vol. XI.

Molybdenum is used as an alloy constituent in the steel industry, and in certain forms of electrical apparatus. Included in the latter is its successful substitution for platinum and platinum-iridium in electric contact-making and -breaking devices. In alloys it is used similarly to and in conjunction with chromium, cobalt, iron, manganese, nickel, tungsten and vanadium. The oxides and the ammonium salt have important chemical uses.

The two principal molybdenum minerals are: the sulphide, molybdenite, and wulfenite, lead molybdate; the former furnishing practically the entire commercial output. Molybdenite is found in or associated with acidic igneous rocks, such as granite and pegmatite.

Deposits of disseminated molybdenite are known in several localities in California, and in at least two places it occurs in small masses associated with copper sulphides. The first recorded commercial shipments of molybdenum ore in California were during the war, 1916-

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1918. Some development work has been done on a high-grade deposit at the head of the Kaweah River, Tulare County.

During 1941 there were shipments of molybdenum concentrates in California coming from a tungsten mine in Inyo County. The annual details are concealed under the 'Unapportioned' item so as not to reveal the output of an individual producer. The 1940 output was the largest annual yield exceeding the total of all previous production.

The growing consumption of molybdenum by alloy-steel makers in the United States has been stimulated by the fact that molydenum alone of the steel-alloying metals can be produced commercially in the United States to an extent which avoids all necessity for importation. Another fact has been the marked adaptability of molybdenum steels to large-scale production of automobile and other parts.

The Tariff Act of 1930 provides for an import duty of 35 cents a pound for the metallic molybdenum content of molybdenum ores or concentrates.

The present (June 11, 1942) quotations on molybdenum ores are 45¢ per pound of MoS_2 contained, f.o.b. mine, and on ferromolybdenum are 95¢ per pound Mo, 55%-65% Mo f.o.b. shipping point.

Molybdenum Production of California, by years.

California's production of molybdenum ore by years is summarized in the following tabulation:

Year	Pounds of MoS_2	Value
1916	9,280	$9,945
1917	7,290	9,014
1918	----	----
1919	270	300
1933 } 1934 } [a]	1,306	306
1939 } 1940 } [a]	383,233	147,126
1941 [a]	----	----
Totals	401,379	$166,691

[a] Annual details concealed under 'Unapportioned.'

NICKEL

Bibliography: State Mineralogist Reports XIV, XVII, XXIV, XXV, XXVIII, XXX, XXXIV-XXXVI (inc.). U. S. G. S., Bulletin 640-D. U. S. Bureau of Standards, Circular 100.

Nickel occurs in the Friday Copper Mine in the Julian District, San Diego County. The ore is a nickel-bearing pyrrhotite, with some associated chalcopyrite. Some ore has been mined in the course of development work but not treated nor disposed of, as they were unable to get any smelter to handle it for them. Nickel ore has also been reported from other localities in California, but not yet confirmed.

Present (June 11, 1942) quotations for nickel are around 35¢ per pound for the refined metal.

OSMIUM (see under Platinum)

PALLADIUM (see under Platinum)

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PLATINUM GROUP METALS

Bibliography: State Mineralogist Reports IV, VIII, IX, XII-XXVI (inc.), XXVIII, XXX, XXXI, XXXIV-XXXVII (inc.). Bulletins 38, 45, 67, 85, 91, 92. U. S. Geol. Surv., Bulletins 193, 285. Trans. Am. Inst. Min. Eng., Vol. 47, pp. 217-218.

In California the platinum-group metals are obtained as a by-product from placer operations for gold. The major portion of it comes from the dredges working in Amador, Butte, Merced, Sacramento, Stanislaus, Shasta, Trinity and Yuba counties, with a small amount coming from the hydraulic and surface sluicing mines of Del Norte, Humboldt, Siskiyou and Trinity counties.

The platinum group metals shipped in California during 1941 amounted to a total of 1,094 ounces crude containing 909 fine ounces of metals valued at $40,590 consisting of 678 fine ounces of platinum, 91 fine ounces of iridium, 85 fine ounces of osmium, 33 fine ounces of ruthenium, 2 fine ounces of rhodium, and 20 ounces a mixture of osmium, iridium, palladium, etc. The above metal came from properties in Butte, Calaveras, Del Norte, Fresno, Mendocino, Merced, Placer, Plumas, Sacramento, San Joaquin, Shasta, Siskiyou, Stanislaus, Trinity, and Yuba counties. The 1941 output was a decrease in both amount and value from that of 1940, which was 1,590 ounces crude containing 1,358 fine ounces worth $62,419.

Present quotations[1] (June 11, 1942) are, platinum $36 a fine ounce; iridium $165 per fine ounce; osmium per fine ounce, $45 to $48; palladium per fine ounce, $24; ruthenium per fine ounce $35 to $40; rhodium per fine ounce, $125.

Platinum Production of California, by Years.

The annual production and values since 1887 have been as follows:

Year	Ounces	Value	Year	Ounces	Value
1887	416	$10,400	1915	667	$21,149
1888	100	400	1916	886	42,642
1889	500	2,000	1917	610	43,719
1890	500	2,000	1918	571	42,788
1891	600	2,500	1919	*418	60,611
1892	100	500	1920	477	68,977
1893	80	440	1921	613	58,754
1894	75	517	1922	795	90,288
1895	100	600	1923	602	78,546
1896	150	900	1924	273	36,452
1897	162	944	1925	292	39,937
1898	150	900	1926	322	32,005
1899	300	1,800	1927	139	10,749
1900	300	1,800	1928	312	27,902
1901	400	2,500	1929	212	14,416
1902	250	3,200	1930	217	11,700
1903	39	468	1931	305	11,979
1904	70	1,052	1932	278	8,142
1905	123	1,849	1933	236	7,255
1906	200	3,320	1934	424	14,884
1907	91	1,647	1935	121	4,153
1908	300	6,255	1936	1,000	40,669
1909	706	13,414	1937	530	23,704
1910	337	8,386	1938	1,069	35,150
1911	511	14,873	1939	896	32,135
1912	603	19,731	1940	1,358	62,419
1913	368	17,738	1941	909	40,590
1914	463	14,816	Totals	22,520	$1,096,665

* Fine ounces, beginning with 1919.

[1] E. & M. J., Metal and Mineral Markets, June 11, 1942.

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QUICKSILVER

Bibliography: State Mineralogist Reports IV, V, XII-XV, XVII-XXIX (inc.), XXXI, XXXIII-XXXVII (inc.). Bulletins 27, 78, 91. U. S. Geol. Surv., Monograph XIII. U. S. Bur. of Mines, Tech. Papers 96, 227; Bulletin 222, 335.

The production of quicksilver in California during 1941 amounted to 25,612 flasks, valued at $4,509,041, compared with 18,907 flasks, worth $3,209,754 in 1940. The 1941 output came from 98 properties in 18 counties and was distributed as follows:

County	*Flasks*	*Value*
Fresno	183	$31,909
Lake	6,053	1,045,726
Napa	1,999	337,726
San Benito	6,254	1,077,693
San Luis Obispo	1,854	325,088
Santa Clara	2,644	495,289
Sonoma	3,195	590,263
Colusa, Contra Costa, Kings, Modoc, Monterey, San Bernardino, Santa Barbara, Siskiyou, Solano, Trinity, and Yolo *	3,430	605,347
Totals	25,612	$4,509,041

* Combined to conceal the output of operators in each.

During the year 1941 the average New York quotation [1] was $185,023 per 76-pound flask, while the average price received by the California miner was $176,033 per 76-pound flask.

The above value was the largest annual value in the past 91 years in which a record has been kept of quicksilver production in California, and the largest in amount since 1904; also the amount received by the miner showed the highest average price per flask.

Total Quicksilver Production of California.

Total amount and value of the quicksilver production of California, as given in available records, are shown in the following tabulation. Though the New Almaden Mine in Santa Clara County was first worked in 1824, and was in practically continuous operation from 1846 to 1921 (the yield being small the first two years), there are no available data on the output earlier than 1850. Previous to June, 1904, a 'flask' of quicksilver contained 76½ pounds; then 75 pounds up to and including 1927; beginning with 1928, 76 pounds. In compiling this table the following sources of information were used: for 1850-1883, table by J. B. Randol, in Report of State Mineralogist IV, p. 336; 1883-1893, U. S. Geological Survey reports; 1894 to date, statistical bulletins of the State Mining Bureau; also State Mining Bureau, Bulletin 27, "Quicksilver Resources of California," 1908, p. 10.

[1] Engineering and Mining Journal, 1941, Vol. 142.

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Year	Flasks	Value	Average price per flask	Year	Flasks	Value	Average price per flask
1850	7,723	$768,052	$99 45	1897	26,691	$993,445	$37 28
1851	27,779	1,859,248	66 93	1898	31,092	1,188,626	38 23
1852	20,000	1,166,600	58 33	1899	29,454	1,405,045	47 70
1853	22,284	1,235,648	55 45	1900	26,317	1,182,786	44 94
1854	30,004	1,663,722	55 45	1901	26,720	1,285,014	48 46
1855	33,000	1,767,150	53 55	1902	29,552	1,276,524	43 20
1856	30,000	1,549,500	51 65	1903	32,094	1,335,954	42 25
1857	28,204	1,374,381	48 73	1904	[a]28,876	1,086,323	37 62
1858	31,000	1,482,730	47 83	1905	24,655	886,081	35 94
1859	13,000	820,690	63 13	1906	19,516	712,334	36 50
1860	10,000	535,500	53 55	1907	17,379	663,178	38 16
1861	35,000	1,471,750	42 05	1908	18,039	763,520	42 33
1862	42,000	1,526,700	36 35	1909	16,217	773,788	47 71
1863	40,531	1,705,544	42 08	1910	17,665	799,002	45 23
1864	47,489	2,179,745	45 90	1911	19,109	879,205	46 01
1865	53,000	2,432,700	45 90	1912	20,600	866,024	42 04
1866	46,550	2,473,202	53 13	1913	15,661	630,042	40 23
1867	47,000	2,157,300	45 90	1914	11,373	557,846	49 05
1868	47,728	2,190,715	45 90	1915	14,199	1,157,449	81 52
1869	33,811	1,551,925	45 90	1916	21,427	2,003,425	93 50
1870	30,077	1,725,818	57 38	1917	24,382	2,396,466	98 29
1871	31,686	1,999,387	63 10	1918	22,621	2,579,472	114 03
1872	31,621	2,084,773	65 93	1919	15,200	1,353,381	89 04
1873	27,642	2,220,482	80 33	1920	10,278	775,527	75 45
1874	27,756	2,919,376	105 18	1921	3,157	140,666	44 56
1875	50,250	4,228,538	84 15	1922	3,466	191,851	55 35
1876	75,074	3,303,256	44 00	1923	5,458	332,851	60 98
1877	79,396	2,961,471	37 30	1924	7,948	543,080	68 33
1878	63,880	2,101,652	32 90	1925	7,683	621,831	80 81
1879	73,684	2,194,674	29 85	1926	5,892	516,382	87 64
1880	59,926	1,857,706	31 00	1927	6,488	714,418	111 67
1881	60,851	1,815,185	29 83	1928	[b]7,107	844,649	118 84
1882	52,732	1,488,624	28 23	1929	10,152	1,195,705	117 78
1883	46,725	1,343,344	28 75	1930	11,374	1,255,257	110 36
1884	31,913	973,347	30 50	1931	13,478	1,121,624	83 22
1885	32,073	986,245	30 75	1932	5,349	279,780	52 30
1886	29,981	1,064,326	35 50	1933	4,102	229,472	55 94
1887	33,760	1,430,749	42 38	1934	7,946	534,135	67 22
1888	33,250	1,413,125	42 50	1935	9,353	628,590	67 23
1889	26,464	1,190,880	45 00	1936	8,758	671,055	76 62
1890	22,926	1,203,615	52 50	1937	9,995	837,789	83 82
1891	22,904	1,036,406	45 25	1938	12,171	846,497	69 55
1892	27,993	1,139,595	40 71	1939	11,201	1,105,563	98 43
1893	30,164	1,108,527	36 75	1940	18,907	3,209,754	169 77
1894	30,416	934,000	30 70	1941	25,612	4,509,041	176 03
1895	36,104	1,337,131	37 04				
1896	30,765	1,075,449	34 96	Totals	2,460,830	$126,930,930	

[a] Flasks of 75 lbs. from June, 1904; of 76½ lbs. previously.
[b] Flasks of 76 pounds, from January, 1928.

SILVER

Bibliography: State Mineralogist Reports IV, VIII, XII-XXXVII (inc.). Bulletins 67, 91, 108. Min. & Sci. Press, March 1, 1919.

The 1941 output of silver in California totaled 2,154,188 fine ounces valued at $1,531,867, being a decrease in both amount and value as compared with the 1940 production, which was 2,359,775 fine ounces worth $1,678,063. Of the 1941 output 65,475 fine ounces worth $46,560 came from the placers, and the remainder came from the lode ores. The average price paid for new mined domestic silver in 1941 was 71.11¢ per fine ounce compared with 71.11¢ in 1940; 67.80¢ in 1939; 64.60¢ in 1938; 77.35¢ in 1937; 77.45¢ in 1936; 71.875¢ in 1935; and 64.60¢ in 1934.

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Silver production by counties for 1941 was as follows:

County	Fine ounces	Value
Alpine	325	$231
Amador	23,275	16,551
Butte	29,765	21,166
Calaveras	14,920	10,610
Del Norte	3	2
El Dorado	5,929	4,216
Fresno	976	694
Humboldt	55	39
Imperial	509	362
Inyo	159,227	113,228
Kern	868,192	617,381
Lassen	62	44
Los Angeles	2,287	1,626
Madera	471	335
Mariposa	10,101	7,183
Merced	4,555	3,239
Mono	44,446	31,606
Monterey	7	5
Napa	36,121	25,686
Nevada	444,735	316,256
Orange	4,846	3,446
Placer	56,426	40,125
Plumas	180,615	128,437
Riverside	32,400	23,040
Sacramento	10,232	7,276
San Bernardino	162,893	115,835
San Diego	50	36
San Francisco	3	2
San Joaquin	2,011	1,430
Santa Cruz	3	2
Shasta	25,772	18,327
Sierra	4,524	3,217
Siskiyou	10,034	7,135
Stanislaus	2,314	1,646
Trinity	4,792	3,408
Tulare	56	40
Tuolumne	5,775	4,107
Ventura	5	4
Yuba	5,476	3,894
Totals	2,154,188	$1,531,867

The following paragraph is quoted from the U. S. Bureau of Mines,[1] chapter on Gold and Silver from Mineral Year Book 1941, by courtesy of Charles White Merrill and H. M. Gaylord.

"*Silver*: The bulk of the silver output of California in 1941 was more localized than that of the gold; the 10 leading silver-producing mines, listed in the following table, yielded 80 percent of the State total recoverable silver in that year. The list is similar to that of 1940, except for some changes in rank, the exclusion of the Iron Mountain mine (Shasta County) and the Standard mine (Mono County), and the inclusion of the Columbia No. 2 mine (Inyo County) and the Alabama mine (Placer County). In addition to the mines listed, some silver was recovered from almost every lode and placer mine operating in the State in 1941."

[1] U. S. Bureau of Mines, Mineral Year Book, 1941 (Chapter reprint), Gold, Silver, Copper, Lead, and Zinc in California, p. 6.

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Ten leading silver-producing mines in California in 1941, in order of output:

Rank	Mine	District	County	Rank in 1940	Operator	Source of silver
1	Cactus Queen	Mojave	Kern	1	Cactus Mines Co.	Gold-silver ore
2	Lava Cap	Grass Valley-Nevada City	Nevada	2	Lava Cap Gold Mining Corp.	Gold ore
3	Golden Queen	Mojave	Kern	4	Golden Queen Mining Co.	Gold ore
4	Starlight	Mojave	Kern	5	Lodestar Mining Co.	Gold ore
5	Walker	Genesee	Plumas	3	Walker Mining Co.	Copper ore
6	Columbia No. 2	Resting Springs	Inyo	12	Shoshone Mines, Inc.	Lead ore
7	Kelly	Randsburg	San Bernardino	7	F. Royer and lessees	Gold-silver ore
8	Empire Star Mines	Grass Valley-Nevada City	Nevada	10	Empire Star Mines Co., Ltd.	Gold ore
9	Alabama	Ophir	Placer	11	Alabama California Gold Mines Co.	Gold ore
10	Grigsby (Palisade)	Calistoga	Napa	6	Helena Consolidated Mines, Inc.	Gold-silver ore

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Silver Production of California, by Years.

The amount and value of the silver production of California, and the average price, annually, since 1880 are given in the table following. In the table shown in the statistical bulletins previous to Bulletin 97 (for 1925), the values shown for 1880-1904 (inc.) were taken from the reports of the Director of the Mint, of which the figures for 1880-1896 (inc.) were based on 'coinage value' ($1.2929 per fine ounce). We have recalculated these to commercial value, using the price table of the U. S. Geological Survey (McCaskey, H. D.), Gold and Silver, 1913: Mineral Resources of the U. S., Part I, p. 847. From 1905 to date, the figures are those of the U. S. Geological Survey and its successor, the U. S. Bureau of Mines. Figures for the years prior to 1880 are not available, as there were no reliable records compiled.

Silver Production of California, by Years, Since 1880

Year	Fine oz.	Value	Average price per oz.	Year	Fine oz.	Value	Average price per oz.
1880	882,169	$1,014,494	$1 15	1912	1,300,136	$799,584	$0 615
1881	580,091	655,503	1 13	1913	1,378,399	832,553	604
1882	653,569	745,069	1 14	1914	1,471,859	813,938	553
1883	1,129,244	1,253,461	1 11	1915	1,678,756	851,129	507
1884	3,236,987	3,593,056	1 11	1916	2,564,354	1,687,345	658
1885	1,968,260	2,125,298	1 07	1917	1,775,431	1,462,955	824
1886	1,245,747	1,233,290	99	1918	1,427,711	1,427,711	1 00
1887	1,262,282	1,237,036	98	1919	1,107,189	1,240,051	1 12
1888	1,314,874	1,235,982	94	1920	1,706,327	1,859,896	1 09
1889	823,947	774,510	94	1921	3,629,223	3,629,223	1 00
1890	820,336	861,353	1 05	1922	3,100,065	3,100,065	1 00
1891	737,224	729,852	99	1923	3,559,443	2,918,743	82
1892	358,575	311,960	87	1924	3,555,133	2,381,952	67
1893	415,468	324,065	78	1925	3,054,416	2,119,765	694
1894	229,896	144,834	63	1926	2,022,460	1,262,015	624
1895	463,911	301,542	65	1927	1,620,242	918,677	567
1896	326,757	222,195	68	1928	1,478,711	865,081	585
1897	754,648	452,789	60	1929	1,176,895	627,285	533
1898	701,788	414,055	59	1930	1,622,803	624,779	385
1899	855,869	513,521	60	1931	867,818	251,667	290
1900	1,168,157	724,257	62	1932	493,533	139,176	282
1901	950,831	570,499	60	1933	402,591	140,907	350
1902	1,163,041	616,412	53	1934	844,413	545,883	*644
1903	958,230	517,444	54	1935	1,191,112	856,112	*719
1904	1,441,259	835,929	58	1936	2,103,799	1,629,392	*775
1905	1,076,174	650,009	61	1937	2,888,265	2,234,073	*774
1906	1,220,641	817,830	68	1938	2,590,804	1,674,863	*646
1907	1,138,856	751,646	66	1939	2,599,139	1,764,264	*678
1908	1,647,278	873,057	53	1940	2,359,776	1,678,063	*711
1909	2,098,253	1,091,092	52	1941	2,154,188	1,531,867	*711
1910	1,840,085	993,646	54				
1911	1,270,445	673,336	53	Totals	93,467,763	$69,128,046	

* Average price applied to newly mined within the United States.

TIN

Bibliography: Reports XV, XVII, XVIII, XXV, XXXI, XXXIV, XXXV-XXXVII. Bulletins 67, 91.

During 1940 there was some development at the Apex Mine nine miles north of Cima, San Bernardino County, but no shipments in 1941. Here the tin ore occurs in small kidneys along the talcose slip in dolomitic limestone.

In 1928 and 1929 there was a small amount of tin produced from California ore as well as considerable development work which was

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done at the Temescal mine in Riverside County near Corona. There was an output from the district during 1891-1892 as tabulated below. Small quantities of stream tin have been found in some of the placer workings in northern California, but never in paying amounts.

Two occurrences have also been noted, in northern San Diego County. Crystals of cassiterite were found there, associated with blue tourmaline crystals, amblygonite and beryl. No commercial quantity has been developed, only small pockets having been taken out.

Total Output of Tin in California

Year	Pounds	Value
1891	125,289	$27,564
1892	126,000	32,400
1928 1929 *	1,200	580
Totals	252,489	$60,544

* Annual details concealed under 'Unapportioned.'

TITANIUM

Bibliography: State Mineralogist's Report XXIII, XXXIV.

During 1939 and 1941 there were small shipments of titanium ore (ilmenite) made from material recovered from beach sand at Hermosa Beach, Los Angeles County. The annual details are concealed under the 'Unapportioned' item to conceal the output of an individual producer.

Also during the year the E. I. du Pont de Nemours Company continued to do exploration work on the deposit of ilmenite in the San Gabriel Mountains in Los Angeles County to determine the extent of the deposit. They have also run an experimental test on the ores for commercializing it in the near future.

In 1927 the first recorded shipments of titanium minerals were made in California. The total of the 1927 and 1928 production was 10,013 tons valued at $150,195. All of this came from Los Angeles County and was produced from either the beach black sands which contained approximately 20% titaniferous iron and magnetite, the gangue being silica and several silicates, or from a lode deposit in the San Gabriel Mountains.

The market price of titanium minerals varies as to the titanium oxide it contains. Present (June 11, 1942) quotations are: Rutile 94% TiO at 8¢ to 10¢ a pound, ilmenite 50 to 60% TiO at $28 to $30 a ton, all prices Atlantic seaboard.

Total Output of Titanium in California by Years

Year	*Tons*	*Value*
1927 1928 *	10,013	$150,195
1929	-----	-------
1939 1940 *	160	1,800
1941	*	*
Totals	10,173	$151,995

* Annual details concealed under 'Unapportioned.'

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The metal is used in several different alloys with iron, copper and aluminum and for green and white paint pigments, the only colors of titanium pigments now in common use. It is also used in dyes, rubber, as a porcelain glaze, in glass, and cement made from high-titanium iron slags. This cement is resistant to the action of acids.

TUNGSTEN

Bibliography: Reports XV, XVII, XVIII, XXII, XXIV, XXVII (inc.) XXX, XXXIV-XXXVII (inc.). Bulletins 38, 67, 91, 95, U. S. G. S., Bull. 652. Proc. Colo. Sci. Soc., Vol. XI. South Dakota School of Mines, Bulletin No. 12. Eng. and Min. Jour.-Press, Vol. 113, pp. 666-669, Apr. 22, 1922.

The commercial production of tungsten ores and concentrates in California began in 1905; and has been continuous since, with the exception of 1920-1922, inclusive. During 1941 shipments were made in California of high-grade sorted tungsten ore and concentrates of a total of 171,672 units of WO_3 or an equivalent of 2,860 tons of 60% concentrates, valued at $4,080,628 f.o.b. mine, and came from seven properties in Inyo County; five in Kern County; three each in Fresno, Mono, and San Bernardino counties; and one each in Madera, San Diego, and Tulare counties. The 1941 output was the largest ever made in this State in the amount shipped, with an average value of $23.77 per unit of WO_3 received by the miner, but was only exceeded in value in 1916 when 2,270 tons were shipped worth $4,571,521, or $33.56 per unit of WO_3. The 1940 production was 107,022 units of WO_3 or 1,784 tons of 60% concentrates, worth $2,267,135.

Photo by Walter W. Bradley

FIG. 4. New mill, U. S. Vanadium Corporation, on Pine Creek, Inyo County.

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Total Tungsten Ore Production of California.

The annual amount and value of tungsten ores and concentrates produced in California since the inception of the industry is given herewith, with tonnages recalculated to 60% WO_3:

Year	Tons at 60% WO_3	Value	Average unit WO_3 value	Year	Tons at 60% WO_3	Value	Average unit WO_3 value
1905	57	$18,800	$5 50	1925	573	$348,475	$10 14
1906	485	189,100	6 50	1926	441	316,560	11 96
1907	287	120,587	7 00	1927	649	429,237	11 03
1908	105	37,750	5 99	1928 [a]			
1909	577	190,500	6 50	1929	150	106,280	11 81
1910	457	208,245	7 60	1930	120	82,582	11 47
1911	387	127,706	5 50	1931 [a]			
1912	572	206,000	6 00	1932	26	9,509	6 10
1913	559	234,673	7 00	1933	148	76,605	8 63
1914	420	180,575	7 17	1934	261	224,417	14 33
1915	962	1,005,467	17 42	1935	218	194,542	14 87
1916	2,270	4,571,521	33 57	1936	236	210,819	14 89
1917	2,466	3,079,013	20 81	1937	611	782,187	21 34
1918	1,982	2,832,222	24 82	1938	732	786,860	17 92
1919	214	219,316	17 08	1939	1,235	1,153,735	15 47
1920				1940	1,784	2,267,135	21 15
1923	34	19,126	8 17	1941	2,860	4,080,628	23 77
1924	781	446,009	9 52	Totals	22,659	$24,756,077	

[a] Annual details concealed under 'Unapportioned.'

Tungsten ores have been produced in California principally in the Atolia-Randsburg district in San Bernardino and Kern counties, and the Bishop district in Inyo County; with smaller amounts having come from near Posey (Jack Ranch), Tulare County; Benton, Mono County; the Kings River district in Fresno County; in eastern San Bernardino County near Goffs and Ivanpah; the Grass Valley district in Nevada County; and recently added to the above is the Darwin district in Inyo County; the Kernville and Weldon districts in Kern County; Topaz Lake district in Mono County; and near Warm Springs, San Diego County. Also there are known occurrences of tungsten ores in Alpine, Calaveras, El Dorado, Mariposa, Madera, Plumas, Riverside, Shasta, and Tuolumne counties, of which several are now in production. It also should be considered that in the last ten years there have been more new tungsten deposits discovered than any other type of mineral deposit in this State. Nearly all the ore mined in California has been scheelite (calcium tungstate), although wolframite (iron-manganese tungstate), hübnerite (manganese tungstate), and other tungsten minerals are found in small amounts, in part associated with the scheelite.

VANADIUM

Bibliography: Reports XV, XXVI. Bulletins 67, 91. Proc. Colo. Sci. Soc., Vol. XI, XXXVI. U. S. Bur. of Mines, Bulletin 104.

No commercial production of vanadium has yet been made in California. Occurrences of this metal have been found at Camp Signal, near Goffs, in San Bernardino County, and two companies at one time did considerable development work in the endeavor to open up paying quantities. Some ore carrying lead vanadate has been developed in the 29 Palms, or Washington district, on the line between Riverside and San Bernardino counties, but no shipments reported.

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The principal use of vanadium is as an alloy in steels, especially in tool steel, and in those varieties where resistence to repeated strains is required. Present (July 17, 1941) New York quotations for ferro-vanadium are \$2.70-\$2.90 per pound of vanadium f.o.b. works, and vanadium ore 27½¢ per pound V_2O_5 contained.

ZINC

Bibliography: State Mineralogist Reports XIV, XV, XVII, XVIII, XX-XXIV, XXVI, XXVII, XXX, XXXIII-XXXV (inc.), Bulletins 38, 67, 91.

The recoverable zinc mined in California during 1941 amounted to a total of 880,612 pounds valued at \$66,046 and came from properties in Inyo, Orange, and San Bernardino counties. The 1941 production was an increase in both amount and value as compared with that of 1940, which was 182,088 pounds worth \$11,472.

The output of metallic zinc[1] at reduction plants in the United States during 1941 amounted to a total of 881,523 short tons worth \$123,492,000, of which 169,421 tons was reduced from foreign ores, 59,503 tons were from secondary metal. The 1941 output was an increase in amount and value over that of 1940, which was 724,192 net tons valued at \$91,248,000. The average price per pound of zinc in 1941 was 7.5¢ compared with 6.3¢ in 1940; 5.2¢ in 1939; 4.8¢ in 1938; and 6.5¢ in 1937.

The zinc ores in Shasta and Calaveras counties are associated with those of copper, while those of Inyo, Los Angeles, Orange, San Bernardino, and Tulare were associated principally with lead-silver and zinc-silver ores.

Total Zinc Production of California.

Total figures for zinc output of the State are as follows, commercial production dating back only to 1906:

Year	Pounds	Value	Year	Pounds	Value
1906	206,000	\$12,566	1924	3,060,000	\$198,900
1907	177,759	10,598	1925	11,546,602	877,542
1908	54,000	3,544	1926	20,447,559	1,533,568
1909			1927	8,625,004	552,000
1910			1928		
1911	2,679,842	152,751	1929		
1912	4,331,391	298,866	1931	149,865	5,314
1913	1,157,947	64,845	1932		
1914	399,641	20,381	1933	290,222	12,189
1915	13,043,411	1,617,383	1934	721,719	31,034
1916	15,950,565	2,137,375	1935	328,013	14,432
1917	11,854,804	1,209,190	1936	29,740	1,487
1918	5,565,516	506,466	1937	39,643	2,577
1919	1,384,192	101,046	1938	17,554	843
1920	1,188,009	96,229	1939	16,390	852
1921	846,184	42,309	1940	182,088	11,472
1922	3,034,430	172,963	1941	880,612	66,046
1923			Totals	108,208,750	\$9,754,768

[1] U. S. Bureau of Mines, Mineral Market Report 907, April 25, 1941.

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CHAPTER FOUR

STRUCTURAL MATERIALS

Bibliography: State Mineralogist Reports XII-XXXVIII (inc.). Bulletin 38. Spurr and Wormser, "Marketing of Metals and Minerals." "Non-Metallic Minerals," by R. B. Ladoo. "Industrial Minerals and Rocks," A. I. M. E., 1937. See also under each substance.

As indicated by this subdivision heading, the mineral substances herein considered are those more or less directly used in building and structural work. California is independent, so far as these are concerned, and almost any reasonable construction can be made with materials produced in the State. Chromite, which previous to 1933 was listed under structural materials in the statistical reports of the State Division of Mines, is now transferred to the metals group, thus coinciding with the practice of the United States Bureau of Mines.

This branch of the mineral industry for 1941 had a total value of $51,938,605, compared with $34,739,419 in 1940. All materials grouped during 1941 in this classification showed increases in amount and value over the previous year, with the exception of marble, and bituminous rock.

In 1941 all counties but two, namely Kings and Sutter, contributed to the structural materials total. There is not a county in the fifty-eight counties of the State which is not capable of producing at least one of the materials under the classification.

The following summary shows the value of the structural materials produced in California during the years 1940-1941, with increases or decreases in each instance:

Substance	1940		1941		Increase+ Decrease— Value
	Amount	Value	Amount	Value	
Brick and hollow building tile		$2,762,885		$3,598,797	$835,912+
Cement	13,955,255 bbls.	17,673,202	19,531,608 bbls.	26,248,694	8,575,492+
Granite		198,896		261,661	62,765+
Lime	101,395 tons	902,322	110,719 tons	996,514	94,192+
Marble		15,189		14,448	841—
Sandstone		13,083		13,143	60+
Slate	4,777 tons	18,031			
Stone, miscellaneous		12,181,564	34,626,035 tons	19,559,883	7,378,319+
Unapportioned		[a]974,147		[b]1,245,465	271,318+
Total value		$34,739,319		$51,938,605	
Net increase					$17,199,186

[a] Includes bituminous rock, magnesite, tube-mill pebbles, and paving blocks.
[b] Includes bituminous rock, magnesite, slate, paving blocks, tube-mill pebbles.

ASPHALT

Bibliography: State Mineralogist Reports VII, X, XII-XV (inc.), XVII, XVIII. Bulletins 16, 32, 63, 67, 69, 91, 118.

Asphalt was for a number of years accounted for in the statistical reports by the State Mining Bureau, because in the early days of the oil industry, considerable asphalt was produced from outcroppings of

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oil sand, and was a separate industry from the production of oil itself. However, at the present time most of the asphalt comes from the oil refineries, which produce a better and more uniform grade; hence, its value is not now included in the mineral total, as to do so would be in part a duplication of the crude petroleum figures. Such natural asphalt as is at present mined is in the form of bituminous sandstones, and is recorded under that designation.

BITUMINOUS ROCK

Bibliography: State Mineralogist Reports XII, XIII, XV, XVII, XVIII, XXI, XXII, XXV, XXVI, XXXI.

This material is essentially an uncemented sandstone which is saturated with and held together by a natural asphaltic constituent, probably the residue from the evaporation of a crude petroleum deposit. Bituminous rock is still used to a limited extent for road dressing in those districts adjacent to available deposits, though the manufacture of asphalt at the oil refineries has almost entirely superceded the direct use of the native material. Some of the Santa Cruz County production is put on the market as a material which can be laid cold. This material is especially applicable and valuable for patch jobs.

During 1941 the output of bituminous rock in California came from a single property each in Santa Barbara and Santa Cruz counties; the annual details are concealed under the 'Unapportioned' item so as not to reveal the output of either operator. The 1941 production showed a decrease in amount and value as compared with that of 1940.

Bituminous Rock Production of California, by Years.

The following tabulation shows the total amount and value of bituminous rock quarried and sold in California, from the records compiled by the State Mining Bureau, annually since 1887:

Year	Tons	Value	Year	Tons	Value
1887	36,000	$160,000	1915	17,789	$61,468
1888	50,000	257,000	1916	19,449	66,561
1889	40,000	170,000	1917	5,590	18,580
1890	40,000	170,000	1918	2,561	9,067
1891	39,962	154,164	1919	4,614	18,537
1892	24,000	72,000	1920	5,450	27,825
1893	32,000	192,036	1921	8,298	43,192
1894	31,214	115,193	1922	4,624	13,570
1895	38,921	121,586	1923	2,945	11,780
1896	49,456	122,500	1924	6,040	14,922
1897	45,470	128,173	1925	2,681	10,724
1898	46,836	137,575	1926	3,863	21,577
1899	40,321	116,097	1927	3,515	17,704
1900	25,306	71,495	1928	4,966	33,832
1901	24,052	66,354	1929	3,320	14,360
1902	33,490	43,411	1930	8,525	36,075
1903	21,944	53,106	1931		
1904	45,280	175,680	1932	*	23,653	109,140
1905	24,753	60,436	1933		
1906	16,077	45,204	1934	*	36,793	130,301
1907	24,122	72,835	1935		
1908	30,718	109,818	1936	*	41,681	133,344
1909	34,123	116,436	1937		
1910	87,547	165,711	1938	*	36,128	139,242
1911	75,125	117,279	1939		16,546	63,612
1912	44,073	87,467	1940	*	29,709	86,903
1913	37,541	78,479	1941			
1914	66,119	166,618	Totals		1,393,190	$4,428,969

* Annual details concealed under 'Unapportioned.'

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BRICK AND HOLLOW TILE

Bibliography: State Mineralogist Reports VIII, X, XII-XV (inc.), XVII-XXVIII (inc.), XXXII, XXXVII. Bulletins 38, 39. Preliminary Report No. 7. Cal. Jour. of Development, June, 1925, pp. 5-6.

Bricks of many varieties and in important quantities are annually produced in California, as might be expected in a state with such diversified and widespread mineral resources. The varieties include common, fire, pressed, glazed, enamel, fancy, vitrified, sand-lime, and others. Not only do the plants here supply practically all of our own requirements in these products, but considerable quantities are shipped to contiguous territory and certain products are shipped over a much wider radius. We also include under this heading the various forms of hollow building 'tile' or blocks.

During the year 1941 there was a production in California of 103,690 M of common brick, valued at $1,158,590; 27,864 M of fire brick, valued at $2,010,111; 6,371 M of glazed, pressed, fancy and vitrified brick, valued at $264,708; and 16,513 tons of hollow building tile, valued at $165,388, the entire output having a total value of $3,598,797, as compared with the 1940 output which was 106,235 M of common brick, worth $1,219,166; 17,992 M of fire brick, worth $1,069,023; 5,642 M of pressed and other brick, worth $191,226; and 29,048 tons of hollow building tile, worth $238,430; and a total value of $2,762,885 for the year. It will be noted that the output of fire brick almost doubled in amount and value in 1941 over 1940; that pressed, glazed, fancy, and vitrified brick showed increases, and common brick and hollow building tile a decreased output and value when compared with the previous year.

The 1941 brick and building tile production was manufactured in 37 plants in 18 counties; twelve in Los Angeles County; three each in Alameda and Contra Costa counties; two each in Kern, Sacramento, San Diego, and San Joaquin counties, and one each in Amador, Fresno, Humboldt, Orange, Placer, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Santa Clara, and Tulare counties.

Brick and Hollow-Tile Production of California, by Years.

Record of brick production in the state has been kept since 1893 by this Bureau, the figures for hollow building 'tile' or blocks being also included since 1914. The annual and total figures, for amount and value, are given in the following table:

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Year	Brick, M	Hollow building blocks, tons	Value
1893	103,900		$801,750
1894	81,675		457,125
1895	131,772		672,360
1896	24,000		524,740
1897	97,468		563,240
1898	100,102		571,362
1899	125,950		754,730
1900	137,191		905,210
1901	130,766		860,488
1902	169,851		1,306,215
1903	214,403		1,999,546
1904	281,750		1,994,740
1905	286,618		2,273,786
1906	277,762		2,538,848
1907	362,167		3,438,951
1908	332,872		2,506,495
1909	333,846		3,059,929
1910	340,883		2,934,731
1911	327,474		2,638,121
1912	337,233		2,940,290
1913	358,754		2,915,350
1914	270,791		2,288,227
1915	180,538		1,678,756
1916	206,960		2,096,570
1917	192,269	29,348	2,532,721
1918	136,374	34,818	2,363,481
1919	156,328	36,026	3,087,067
1920	245,842	99,208	5,704,393
1921	238,022	67,100	5,570,875
1922	374,853	105,909	7,994,991
1923	397,754	122,534	9,738,082
1924	456,716	114,469	9,137,908
1925	361,094	105,491	7,503,976
1926	388,048	90,332	7,026,124
1927	374,111	75,116	6,516,077
1928	272,443	66,277	5,694,770
1929	327,011	66,713	5,607,410
1930	267,019	68,047	4,205,460
1931	151,545	51,988	2,560,415
1932	90,683	27,098	1,605,086
1933	76,905	25,814	1,520,481
1934	66,738	17,534	1,044,661
1935	76,521	21,309	1,855,343
1936	131,667	16,081	2,240,905
1937	148,833	17,521	3,083,902
1938	129,273	16,592	2,594,546
1939	150,503	16,283	3,063,660
1940	129,887	29,048	2,762,885
1941	137,925	16,513	3,598,797
Totals	10,993,090	1,337,169	$152,035,576

CEMENT

Bibliography: State Mineralogist Reports VIII, IX, XII, XIV, XV, XVII, XVIII, XXI-XXVIII (inc.), XXXII. Bulletin 38.

During 1941 cement production in California amounted to 19,531,608 barrels, valued at $26,248,694 f.o.b. plant, of which 10,281,489 barrels came from plants in northern California and 9,250,119 from southern California plants. This was the largest output as to amount recorded in the State and was only exceeded in value in 1927. The 1940 output amounted to 13,955,255 barrels, worth $17,673,202.

Shipments during 1941 were made by twelve plants in eleven counties to the extent of 19,833,796 barrels, valued at $27,219,800, as compared with 13,545,306 barrels, worth $17,195,105 shipped in 1940. During 1941 there were seven plants operating in northern California; one each in Calaveras, Contra Costa, Merced, San Benito, San Mateo, Santa Clara, and Santa Cruz counties, which shipped 10,898,489 barrels

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of cement, and five plants in southern California; two in San Bernardino County, and one each in Kern, Los Angeles [1] and Riverside counties, which shipped 8,935,307 barrels of cement. There was an average of 2790 men employed in the above mills during the year. The annual capacity of California cement mills, according to the U. S. Bureau of Mines,[2] was 26,040,000 barrels as of January, 1942, compared with 24,140,000 barrels for January, 1941.

Cement Production of California, by Years.

'Portland' cement was first commercially produced in California in 1891; though in 1860 and and for several years following, a natural hydraulic cement from Benicia was utilized in building operations in San Francisco.

"The Benicia Cement Company in 1859-60 was turning out 50 to 100 barrels of cement a day and San Francisco was using about 12,000 barrels a year. The mill price of the product was then $4 a barrel. By 1865, the San Francisco rate of consumption had increased to 100,000 barrels yearly, brick buildings largely taking the place of frame structures, and the price of cement had fallen to $2.50 a barrel, about the same as it is today." [3]

The growth of the industry became rapid after 1902; since which time cement has continued to be an important factor in the industrial life of the State. Although the total cement figures, to date, are not of the same magnitude as those for gold and petroleum, it is interesting to note that the value of California's cement yield in the period 1920-1931 annually exceeded the value of her gold output.

Cement Production of California, by Years

Year	Barrels	Value	Year	Barrels	Value
1891	5,000	$15,000	1917	5,790,734	$7,544,282
1892	5,000	15,000	1918	4,772,921	7,969,909
1893			1919	4,645,289	8,591,990
1894	8,000	21,600	1920	6,709,160	14,962,945
1895	16,383	32,556	1921	7,404,221	18,072,120
1896	9,500	28,250	1922	8,962,135	16,524,056
1897	18,000	66,000	1923	10,825,405	25,999,203
1898	50,000	150,000	1924	11,655,131	23,225,850
1899	60,000	180,000	1925	13,206,630	25,043,335
1900	52,000	121,000	1926	13,797,173	25,269,678
1901	71,800	159,842	1927	14,661,783	26,474,935
1902	171,000	423,600	1928	13,625,231	24,463,287
1903	640,868	968,727	1929	12,794,729	21,038,565
1904	969,538	1,539,807	1930	9,831,938	14,575,731
1905	1,265,553	1,791,916	1931	7,693,712	11,510,655
1906	1,286,000	1,941,250	1932	5,657,549	7,967,107
1907	1,613,563	2,585,577	1933	7,284,031	10,331,395
1908	1,629,615	2,359,692	1934	8,936,085	12,445,616
1909	3,779,205	4,969,437	1935	8,086,292	10,120,721
1910	5,453,193	7,485,715	1936	13,300,188	18,314,589
1911	6,371,369	9,085,625	1937	12,072,062	16,546,229
1912	6,198,634	6,074,661	1938	10,561,037	15,502,574
1913	6,167,806	7,743,024	1939	10,984,033	15,616,219
1914	5,109,218	6,558,148	1940	13,955,255	17,673,202
1915	4,918,275	6,044,950	1941	19,531,608	26,248,694
1916	5,299,507	6,210,293	Totals	307,913,359	$488,604,547

[1] The plant in Los Angeles County grinds clinker coming from other counties, therefore the crude material is credited to the point of origin.

[2] U. S. Bureau of Mines, Monthly Cement Statement No. 248, Jan. 1942.

[3] Monthly Review of Mercantile Trust Co. of Calif., Vol. XIII, No. 3, p. 55, Mar. 1924.

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GRANITE

Bibliography: State Mineralogist Reports X, XII-XXVI (inc.), XXVIII, XXXI, XXXV-XXXVII (inc.). Bulletin 38.

The 1941 output of granite in California had a total value of $261,661, as compared with $198,896 for 1940. The 1941 production included 11,915 cu. ft. of building stone, valued at $75,364; 27,563 cu. ft. of monumental stone, valued at $170,658; 884 linear ft. of curbing, valued at $1,129; and 32,212 cu. ft. of unclassified material including some tuff, volcanic rock, and a small amount of mica schist, which was used as building stone and flagstone, having a value of $14,510. The above came from 13 quarries in 10 counties, three quarries of which were in San Diego County; two in Placer County; and one each in Fresno, Lassen, Los Angeles, Madera, Riverside, Sacramento, San Bernardino, and Sonoma counties. The material from Los Angeles County was a mica schist and that from Sonoma County a tuff.

So far as possible, granite production has been segregated in the statement herewith into the various uses to which the product was put. It will be noted, however, that a portion of the output has been entered under the heading 'Unclassified.' This is necessary because of the fact that some of the producers have no way of telling to what specific use their stone was put after they had quarried and sold the same in the rough.

Varieties.

For building purposes, the granite found in California, particularly the varieties from Raymond in Madera County, Rocklin in Placer County and near Porterville in Tulare County, are unexcelled by any similar stone found elsewhere. The quantities available, notable at Raymond and Porterville, are unlimited. Most of California's 'granite,' particularly that found in the Sierra Nevada Mountains, is technically 'granodiorite' (that is, both plagioclase and orthoclase feldspars are present).

Granites of excellent quality for building and ornamental purposes are also quarried in Riverside, San Bernardino, and San Diego counties. Near Lakeside, San Diego County, there is a fine-grained, 'silver gray' granite of uniform texture and color, especially suited for monumental and ornamental work.

The Fresno County stone is a dark, hornblende diorite, locally called 'black granite,' whose color permits of a fine contrast of polished and unpolished surfaces, making it particularly suitable for monumental and decorative purposes. There is also similar 'black granite' in Tulare County, near Success.

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Granite Production of California, by Years.

The value of granite produced, annually, since 1887 has been as follows:

Year	Value	Year	Value
1887	$150,000	1915	$227,928
1888	57,000	1916	535,339
1889	1,329,018	1917	221,997
1890	1,200,000	1918	139,861
1891	1,300,000	1919	220,743
1892	1,000,000	1920	495,732
1893	531,322	1921	725,901
1894	228,816	1922	676,643
1895	224,329	1923	760,081
1896	201,004	1924	1,211,046
1897	188,024	1925	1,853,859
1898	147,732	1926	655,332
1899	141,070	1927	1,398,443
1900	295,772	1928	763,996
1901	519,285	1929	1,169,271
1902	255,239	1930	855,477
1903	678,670	1931	636,741
1904	467,472	1932	398,676
1905	353,837	1933	183,706
1906	344,083	1934	249,083
1907	373,376	1935	339,917
1908	512,923	1936	244,243
1909	376,834	1937	207,738
1910	417,898	1938	131,386
1911	355,742	1939	145,194
1912	362,975	1940	198,896
1913	981,277	1941	261,661
1914	628,786	Total	$28,531,374

LIME

Bibliography: State Mineralogist's Reports XIV, XV, XVII-XXIX (inc.), XXXIII-XXXV (inc.), Bulletin 38.

The output of lime in California during 1941 amounted to 110,719 short tons, valued at $996,514, and came from two plants each in El Dorado and San Bernardino counties and one each in Alameda, Santa Cruz, and Tuolumne counties. The above figures showed an increase in both amount and value over the 1940 production which was 101,395 short tons worth $902,322. The 1941 totals were the largest of any year on record in California.

So far as we have been able to segregate the data, these figures include mainly only such lime as is used in building operations; though they do include a small proportion of calcined lime employed in agriculture and the chemical industries, the figures for which were not separable. A portion is hydrated lime. Limestone utilized in sugar making, for smelter flux, as a fertilizer, and other special industrial uses, is classified under 'Industrial Materials.' That consumed in cement manufacture is included in the value of cement.

Lime Production of California, by Years.

The following tabulation gives the amounts and value of lime produced in California by years since 1894 when compilation of such records was begun by the State Mining Bureau. The figures for quantity have been recalculated from 'barrels,' as shown in the earlier reports, to 'tons' for the years 1894-1922 (inc.):

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Year	Tons	Value	Year	Tons	Value
1894	37,350	$318,700	1919	42,070	$552,043
1895	39,776	386,094	1920	46,314	557,232
1896	30,275	261,505	1921	46,353	610,619
1897	28,780	252,900	1922	57,875	671,747
1898	29,786	254,010	1923	70,894	788,834
1899	29,985	314,575	1924	62,029	703,355
1900	31,252	283,699	1925	61,922	685,528
1901	31,738	334,688	1926	63,568	670,837
1902	44,866	369,616	1927	60,498	631,497
1903	49,659	418,280	1928	56,616	547,919
1904	57,945	571,749	1929	42,834	417,101
1905	61,700	555,322	1930	47,662	452,084
1906	68,927	763,060	1931	36,189	360,523
1907	68,422	756,376	1932	27,510	254,223
1908	39,639	379,243	1933	33,425	271,619
1909	52,075	577,824	1934	32,500	309,765
1910	47,951	477,683	1935	59,731	573,212
1911	42,959	390,988	1936	64,275	633,678
1912	52,212	464,440	1937	69,532	681,277
1913	61,344	528,547	1938	70,578	683,403
1914	43,996	378,663	1939	87,288	849,122
1915	35,653	286,304	1940	101,395	902,322
1916	49,364	390,475	1941	110,719	996,514
1917	50,073	311,380			
1918	43,684	461,315	Totals	2,481,288	$24,291,890

MAGNESITE

Bibliography: State Mineralogist Reports XII-XV (inc.), XVII-XXVII (inc.), XXX, XXXI, XXXIV, XXXVI-XXXVII. Bulletins 38, 79, 91. U. S. Geol. Surv., Bulletins 355, 540. Min. Res. 1913, Pt. II, pp. 450-453. Min. & Sci. Press, Vol. 114, p. 237. "Magnesite"—Hearings before Comm. on Ways and Means, House of Repr., on H. R. 5218, June 16, 17, and July 17, 1919. Eng. Soc. W. Penn., Proc. 1913, Vol. 29, pp. 305-388, 418-444. Eng. & Min. Jour.-Pres., Vol. 114, July 29, and Dec. 2, 1922. U. S. Tariff Comm., "Crude and Caustic Calcined Magnesite. A Preliminary Statement of Information," May 19, 1926.

The production of crude magnesite in California during 1940 came from a single property each in Imperial, Santa Clara, and Stanislaus counties, and included from Alameda County magnesium carbonate reduced from bittern waters from salt works and burnt as magnesite. All but the Imperial County material was produced by one company, therefore the annual details are concealed under the 'Unapportioned' item so as not to reveal their output. Practically all was shipped in the calcined form.

The 1941 output of magnesite in California was the largest since 1917. The annual details are concealed under 'Unapportioned' item so as not to reveal the output of individual producers. The 1940-1941 production showed a total of 241,620 net tons of crude magnesite valued at $2,069,220, of this only a small amount was sold as such. Most of the material was calcined before being marketed. Operators reported a total of 101,999 net tons of calcined material valued at $3,520,970 rail-shipping point, was made during 1940-1941 and was deadburned for refractories and material for the plastic trade.

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In California the known deposits are mostly in the metamorphic rocks of the Coast Ranges and the Sierra Nevada, being associated with serpentine areas. The notable exceptions are the sedimentary deposits at Bissell in Kern County and at Afton in San Bernardino County. Several thousand tons have been shipped from the Bissell deposit; and small shipments have been made from the Afton property. Beginning in 1938, a portion of the market for calcined magnesite is being supplied by magnesium oxide produced from salt-works bitterns at a plant at Newark, Alameda County, on San Francisco Bay. The figures for the crude of above tonnage are included under those for magnesium salts in the Salines chapter.

Total Magnesite Production of California.

The first commercial production of magnesite in California was made in the latter part of 1886 from the Cedar Mountain district,[1] southeast of Livermore, Alameda County. Shipments amounting to 'several tons' or 'several carloads' were sent by rail to New York; but there is apparently no exact record of the amount for that first year. The statistical records of the State Mining Bureau began with the year 1887, and the table herewith shows the figures for amount and value, annually, from that time. Shipments of magnesite from Napa County began in 1891 from the Snowflake Mine; from the Red Mountain deposits in Santa Clara County, in 1899; and from Tulare County in 1900.

Total Magnesite Production of California

Year	Tons	Value	Year	Tons	Value
1887	600	$9,000	1915	30,271	$283,461
1888	600	9,000	1916	154,052	1,311,893
1889	600	9,000	1917	209,648	1,976,227
1890	600	9,000	1918	83,974	803,492
1891	1,500	15,000	1919	44,696	452,094
1892	1,500	15,000	1920	83,695	1,033,491
1893	1,093	10,930	1921	47,837	511,102
1894	1,440	10,240	1922	55,637	594,665
1895	2,200	17,000	1923	73,963	946,643
1896	1,500	11,000	1924	67,236	900,183
1897	1,143	13,671	1925	64,623	872,944
1898	1,263	19,075	1926	50,915	587,642
1899	1,280	18,480	1927	46,093	577,887
1900	2,252	19,333	1928	45,645	501,590
1901	4,726	43,057	1929	47,269	488,014
1902	2,830	20,655	1930	38,681	388,472
1903	1,361	20,515	1931	21,576	182,283
1904	2,850	9,298	1932	* 40,303	282,325
1905	3,933	16,221	1933		
1906	4,032	40,320	1934	* 62,509	413,228
1907	6,405	57,720	1935		
1908	10,582	80,822	1936	* 94,491	734,443
1909	7,942	62,588	1937		
1910	16,570	113,887	1938	* 47,954	375,005
1911	8,858	67,430	1939		
1912	10,512	105,120	1940	* 241,620	2,069,220
1913	9,632	77,056	1941		
1914	11,438	114,380	Totals	1,772,380	$17,301,102

* Combined under 'Unapportioned.'

[1] See U. S. Geol. Surv.; Mineral Resources of U. S., 1886, pp. 6 and 696.

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MARBLE

Bibliography: State Mineralogist Reports XII-XV (inc.), XVII-XXX (inc.), XXXIV, XXXV, XXXVII. Bulletin 38. U. S. Bur. of Mines Bull. 106.

The 1941 production of marble in California was valued at $14,448 (including some onyx and travertine from Solano County, and a small amount of limestone used as building stone and flagstone coming from a single operator each in Los Angeles and Santa Barbara counties). The marble came from a single quarry in Tuolumne county. The 1941 output showed a decrease in value from that of 1940 which was $15,189.

California has many beautiful and serviceable varieties of marble, suitable for almost any conceivable purpose of construction or decoration. In the decorative class are deposits of onyx marble of beautiful coloring and effects. There is also serpentine marble suitable for electrical switchboard use.

Marble Production of California, by Years.

Data on annual production since 1887, as compiled by the State Mining Bureau, follows. Previous to 1894 no records of amounts were preserved.

Total Production of Marble in California, by Years

Year	Cubic feet	Value	Year	Cubic feet	Value
1887	----------	$5,000	1915	22,186	$41,518
1888	----------	5,000	1916	25,954	50,280
1889	----------	87,030	1917	24,755	62,950
1890	----------	80,000	1918	[a]17,428	49,898
1891	----------	100,000	1919	25,020	74,482
1892	----------	115,000	1920	[b]29,531	92,899
1893	----------	40,000	1921	30,232	98,395
1894	38,441	98,326	1922	38,321	127,792
1895	14,864	56,566	1923	28,015	124,919
1896	7,889	32,415	1924	[b]61,579	140,253
1897	4,102	7,280	1925	35,664	116,105
1898	8,050	23,594	1926	34,806	119,999
1899	9,682	10,550	1927	[b]42,308	103,689
1900	4,103	5,891	1928	[b]34,324	82,190
1901	2,945	4,630	1929	[b]72,881	93,661
1902	19,305	37,616	1930	[b]65,775	82,194
1903	84,624	97,354	1931	[b]37,776	81,760
1904	55,401	94,208	1932	[b]25,506	42,505
1905	73,303	129,450	1933	[b]9,039	23,178
1906	31,400	75,800	1934	[b]7,185	10,759
1907	37,512	118,066	1935	(b)	9,884
1908	18,653	47,665	1936	(b)	23,011
1909	79,600	238,400	1937	(b)	23,667
1910	18,960	50,200	1938	(a) (b)	6,015
1911	20,201	54,103	1939	(b)	14,822
1912	27,820	74,120	1940	(b)	15,189
1913	41,654	113,282	1941	(b)	14,448
1914	25,436	48,832	Total value	----------	$3,567,840

[a] Includes onyx and serpentine.
[b] Includes onyx and travertine.

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ONYX AND TRAVERTINE

Bibliography: State Mineralogist Reports XII-XV (inc.), XVII, XVIII, XXI, XXIII, XXXI, XXXIV. Bulletin 38.

Onyx and travertine are known to exist in a number of places in California, but there has been only a small and irregular production since the year 1896. In 1940 there was one producer of onyx in Solano County. The 1940 output showed an increase in both quantity and value over that of 1939, the figures of which are combined with marble. This material is used in terrazzo, auto gear-shift handles, bases for fountain-pen sets, and other ornamental purposes.

Onyx Production of California, by Years.

Production by years has been as follows:

Year	Value	Year	Value
1887	*	1925	$16,120
1888	$900	1926	7,575
1889	900	1927	*
1890	900	1928	*
1891	1,500	1929	*
1892	2,400	1930	*
1893	1,800	1931	*
1894	27,000	1932	*
1895	20,000	1933	*
1896	12,000	1934	*
1918	24,000	1935	*
1919	*	1936	*
1920		1937	*
1921	1,294	1938	*
1922	3,320	1939	*
1923	2,510	1940	*
1924	*	1941	*
		Total value	$122,219

[b] See under Marble.

SANDSTONE

Bibliography: State Mineralogist Reports XII-XV, XVII, XVIII, XXI, XXIII, XXVI-XXVIII (inc.), XXXIV, XXXV. Bulletin 38. U. S. Bur. of Mines, Bull. 124.

An unlimited amount of high-grade sandstone is available in California, but the wide use of concrete in buildings of every character, as well as the popularity of a lighter-colored building stone, has curtailed production in this branch of the mineral industry during recent years almost to the vanishing point. In 1941 there was a total of 60,958 cu. ft. of sandstone produced in California, valued at $13,143 at the quarry. This came from two properties each in Monterey and San Luis Obispo counties and one each in Colusa, Napa, Riverside, Shasta, and Ventura counties.

Practically all of the material was flagstone which is used in garden walks, fountains, walls and fireplaces to give effect to Spanish and English types of homes. The material reported from Monterey and San Luis Obispo counties is in reality an indurated shale of the Monterey series, of a cream color and utilized as a building stone. Part of the material coming from Los Angeles County was schist and indurated shale.

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Sandstone Production of California, by Years.

Amount and value, so far as contained in the records of this Bureau, are presented herewith, with total value from 1887 to date:

Year	Cubic feet	Value	Year	Cubic feet	Value
1887		$175,000	1915	63,350	$8,438
1888		150,000	1916	17,270	10,271
1889		175,598	1917	31,090	7,074
1890		100,000	1918	900	400
1891		100,000	1919	5,400	3,720
1892		50,000	1920	10,500	2,300
1893		26,314	1921	10,150	2,112
1894		113,592	1922	900	1,100
1895		35,373	1923	7,000	13,000
1896		28,379	1924	6,700	3,600
1897		24,086	1925	14,704	14,362
1898		46,384	1926	34,100	17,500
1899	56,264	103,384	1927	222,900	205,400
1900	378,468	254,140	1928	134,100	43,250
1901	266,741	192,132	1929	177,655	49,881
1902	212,123	142,506	1930	160,704	56,404
1903	253,002	585,309	1931	110,244	30,960
1904	363,487	567,181	1932	41,793	13,286
1905	302,813	483,268	1933	25,980	10,888
1906	182,076	164,068	1934	21,738	14,245
1907	159,573	148,148	1935	38,426	9,268
1908	93,301	55,151	1936	24,705	9,180
1909	79,240	37,032	1937	73,190	15,680
1910	165,971	80,443	1938	43,107	9,384
1911	255,313	127,314	1939	54,380	12,494
1912	6[illegible],487	22,574	1940	27,992	13,083
1913	62,227	27,870	1941	60,958	13,143
1914	111,691	45,322			
			Total value		$4,650,891

SERPENTINE

Bibliography: State Mineralogist Report XV. Bulletin 38.

Serpentine has not been produced in California to a very large extent at any time. A single deposit, that on Santa Catalina Island, has yielded the principal output to date. Some material was shipped from there in 1917 and 1918, being the only output recorded since 1907. It was used for decorative building purposes and for electrical switchboards. As there was but a single operator, the figures were combined with those of marble output for those years.

The production of serpentine prior to 1919 was 'verde antique' which is used as an ornamental stone and often classed as a marble. In recent years experimental tests have proved several possible commercial applications to which this mineral might be put such as an admix in cement, in the manufacture of magnesium chemicals, in terrazzo, as a substitute for soapstone, and as a filler. During 1938 there was a small shipment of serpentine from one property in San Bernardino County. The annual details are concealed in the 'Unapportioned' item so as not to reveal the output of an individual.

Serpentine Production of California, by Years.

The following table shows the amount and value of serpentine from 1895 as recorded by this bureau:

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Serpentine Production in California, by Years

Year	Cubic feet	Value	Year	Cubic feet	Value
1895	4,000	$4,000	1905		
1896	1,500	6,000	1906	847	$1,694
1897	2,500	2,500	1907	1,000	3,000
1898	750	3,000	1917	[a]	[a]
1899	500	2,000	1918	[b]	[b]
1900	350	2,000	1919		
1901	89	890	1938	[b]	[b]
1902	512	5,065			
1903	99	800			
1904	200	2,310	Totals	12,347	$33,259

[a] Under 'Unapportioned.'
[b] See under Marble.

SLATE

Bibliography: State Mineralogist Reports XV, XVIII, XXIV, XXVIII, XXXIV. Bulletin 38. U. S. Geol. Surv., Bull. 586. U. S. Bur. of Mines, Bull. 218.

Slate was first produced in California in 1889. Up to and including 1910 such production was continuous, but since then it has been irregular. Large deposits of excellent quality are known in the State, especially in El Dorado, Calaveras and Mariposa counties, but the demand has been light owing principally to competition of cheaper roofing materials.

The slate output in California during 1941 came from one property each in Amador, El Dorado, and Tuolumne counties, the annual details are concealed under the 'Unapportioned' item so as not to reveal the output of individual operators. The 1941 production showed an increase in amount and value over that of 1940, which was 4,777 short tons, having a total value of $18,031 f.o.b. quarry and came from properties in El Dorado, Los Angeles, and Tuolumne counties.

Total Production of Slate in California.

A complete record of amount and value of slate produced in California follows:

Year	Squares	Value	Year	Squares	Value
1889	4,500	$18,089	1915	1,000	$5,000
1890	4,000	24,000	1916		
1891	4,000	24,000	1920	8	80
1892	3,500	21,000	1921		
1893	3,000	21,000	1922	200	2,400
1894	1,800	11,700	1923		
1895	1,350	9,450	1926	[a]	7,371
1896	500	2,500	1927	[b]2,686	17,960
1897	400	2,800	1928	[b]4,075	31,263
1898	400	2,800	1929		
1899	810	5,900	1930	[*] [b]8,220	71,347
1900	3,500	26,250	1931		
1901	5,100	38,250	1932	[*] [b]8,234	55,182
1902	4,000	30,000	1933	[b]5,343	31,958
1903	10,000	70,000	1934	[b]5,065	24,245
1904	6,000	50,000	1935	[a]	40,912
1905	4,000	40,000	1936	[a]	49,818
1906	10,000	100,000	1937	[a]	32,572
1907	7,000	60,000	1938	[b]6,871	30,281
1908	6,000	60,000	1939	[b]5,777	28,327
1909	6,961	45,660	1940	[b]4,777	18,031
1910	1,000	8,000	1941	*	*
1911			Total value		$1,123,146

[*] Annual details conceaeld under 'Unapportioned.'
[a] Quantity not shown as both 'squares' and 'tons' included.
[b] Tons.

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MISCELLANEOUS STONE

Bibliography: State Mineralogist Reports XII-XXVIII (inc.), XXXI-XXXII, XXXV-XXXVII. Bulletin 38; also annual statistical bulletins from 1915 to date.

'Miscellaneous stone' is the name used throughout this report as the title for that branch of the mineral industry covering crushed rock of all kinds, paving blocks, sand and gravel, and pebbles for grinding mills. The foregoing are very closely related from the standpoint of the producer; therefore it has been found to be most satisfactory to group these items as has been done in recent reports of this Bureau. So far as it has been possible to do so, crushed rock production has been subdivided into the various uses to which the product was put. It will be noted, however, a very large percentage of the output has been tabulated under the heading 'Unclassified.' This is necessary because of the fact that many of the producers have no way of telling to what specific use their rock was put (or at least the proportions to each use) after they have quarried and sold the same to distributors and contractors.

In addition to amounts produced by commercial firms, both corporations and individuals, there is hardly a county in the State but uses more or less gravel and broken rocks on its roads. Of much of this, particularly in the country districts, there is no definite record kept.

During 1941 there was a total of 34,626,035 tons of miscellaneous stone including sand, gravel, crushed rock, rubble and riprap, produced in California, valued at $19,559,883, as compared with 24,184,186 tons, worth $12,181,564, in 1940. The 1941 output was the largest in amount ever reported in this State and the value was only surpassed by that of 1926. As in the past, Los Angeles County led in the annual output of these products, its 1941 yield being worth $4,865,007; Alameda County second, with an output worth $2,372,864; Shasta County third, with an output worth $1,678,020, followed in turn by Riverside, San Diego, Contra Costa, Sacramento, San Benito, Sonoma, Napa, Kern, Monterey, San Bernardino, Fresno, and San Joaquin counties. Under this heading every county in the State contributed to the total with the exception of Kings and Sutter counties.

Paving Blocks.

The 1941 output of paving blocks came from a single quarry in Sacramento County. The annual details are concealed under the 'Unapportioned' item so as not to reveal production of either operator.

The paving block industry has decreased materially of recent years, practically to the vanishing point, because of the increased construction of smoother pavements demanded by motor vehicle traffic. The blocks made in Solano County were of basalt; those from Sonoma are of basalt, andesite, and some trachyte, while those from Madera, Placer, Riverside, San Bernardino, and San Diego are of granite; and those from San Mateo County a sandstone.

The amount and value of paving block production, annually, since 1887 has been as follows:

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Year	Amount M	Value	Year	Amount M	Value
1887	*10,000	$350,000	1914	6,053	$270,598
1888	10,500	367,500	1915	3,285	171,092
1889	7,303	297,236	1916	1,322	54,362
1890	7,000	245,000	1917	938	38,567
1891	5,000	150,000	1918	372	17,000
1892	*3,000	96,000	1919	27	1,350
1893	2,770	96,950	1920	63	3,155
1894	2,517	66,981	1921	4	280
1895	2,332	73,338	1922	72	3,924
1896	4,161	77,584	1923	15	880
1897	1,711	35,235	1924	11	935
1898	1,144	21,725	1925	27	1,350
1899	305	7,861	1926		
1900	1,192	23,775	1927	41	2,057
1901	1,920	41,075	1928	25	1,658
1902	3,502	112,437	1929		
1903	4,854	134,642	1930		
1904	3,977	161,752	1931	66	5,900
1905	3,408	134,347	1932		
1906	4,203	173,432	1934	2	75
1907	4,604	199,347	1935		
1908	7,660	334,780	1938		
1909	4,503	199,803	1939	9	439
1910	4,434	198,918	1940		
1911	4,141	210,819	1941	155	30,862
1912	11,018	578,355			
1913	6,364	363,505	Totals	136,004	$5,356,933

* Figures for 1887-1892 (inclusive) are for Sonoma County only, as none are available for other counties during that period though Solano County quarries were then also quite active.

a Annual details concealed under 'Unapportioned.'

Grinding-Mill Pebbles.

The 1941 output of grinding-mill pebbles in California is combined under the 'Unapportioned' item to conceal the production of a single operator in San Diego County.

The amount and value of grinding-mill pebbles, annually, follows:

Year	Tons	Value	Year	Tons	Value
1915	340	$2,810	1929		
1916	20,232	107,567	1930		
1917	21,450	90,538	1931	166	$1,225
1918	8,628	61,268	1932		
1919	2,607	19,272	1933	25	211
1920	2,104	17,988	1934		
1921	247	1,418	1935	300	3,018
1922	1,571	7,628	1936		
1923	2,650	14,936	1937	961	8,356
1924	434	2,969	1938		
1925	215	1,385	1939	960	4,800
1926	102	612	1940		
1927	288	1,800	1941	482	982
1928	372	2,408		*	*
			Totals	64,134	$281,191

* Annual details concealed under 'Unapportioned.'

Sand and Gravel.

A considerable part of the gravel excavated is passed through grading and washing plants, and the material over 2 inches in size is crushed. Much of it is utilized in concrete mixtures. Most of the gravel used for road surfacing and repairs as well as that for railroad ballast is creek-run or pit-run material which is spread upon the roads without undergoing any grading or washing.

The 1941 sand and gravel output totaled 24,836,151 tons, valued at $12,127,785, as compared with 16,279,303 tons worth $7,769,250 for 1940.

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The distribution of the 1941 output of sand and gravel by counties is given in the following table:

County	Sand and gravel	
	Tons	Value
Alameda	[a]3,366,973	$1,914,937
Amador	8,075	6,088
Butte	196,107	146,516
Calaveras	41,719	29,410
Colusa	100,000	25,000
Contra Costa [a]	269,072	208,241
Del Norte	22,266	15,850
Fresno	281,246	188,408
Glenn	81,781	33,204
Humboldt	165,788	51,292
Imperial	90,693	38,863
Inyo	28,118	14,059
Kern	198,560	102,191
Lake	59,640	41,447
Lassen	70,070	36,942
Los Angeles	9,076,846	3,321,875
Mariposa	32,806	91,683
Mendocino	99,505	38,995
Merced	135,138	101,687
Modoc	74,650	19,925
Mono	15,384	16,809
Monterey [a, b]	303,607	357,275
Napa	32,250	22,620
Orange	399,822	220,353
Placer	20,555	14,810
Plumas	141,810	57,050
Riverside [a, b, c]	290,838	191,049
Sacramento [a]	550,278	401,195
San Bernardino	547,151	234,459
San Diego [a, b, c]	709,004	679,455
San Joaquin	335,397	204,322
San Luis Obispo [a]	222,100	157,022
Santa Barbara	134,254	119,459
Santa Clara	276,077	154,024
Santa Cruz	326,688	168,675
Shasta	3,884,675	1,565,579
Siskiyou	81,939	45,221
Sonoma	894,978	547,298
Stanislaus	230,016	142,536
Tehama	5,075	2,925
Trinity	8,533	4,752
Tulare	83,381	36,470
Tuolumne	1,095	718
Ventura [a]	313,945	168,415
Yolo	429,703	130,085
Yuba	152,147	87,238
Alpine, El Dorado, Madera, Marin, Nevada, San Benito, San Mateo [a], Sierra*	67,396	43,358
Totals	24,936,151	$12,127,785

* Combined to conceal output of producers in each.
[a] Includes molding sand.
[b] Includes filter sand.
[c] Includes blast sand.

Included in the above is a total of 57,068 net tons of molding sand, valued at $191,614, coming from two properties in Contra Costa County; and one each in Alameda, Monterey, Riverside, Sacramento, San Diego, San Luis Obispo, San Mateo, and Ventura counties. The 1941 output showed an increase as compared with that of 1940, which was 26,317 tons, worth $100,917.

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Photo by Walter W. Bradley

FIG. 5. Del Monte sand pit near Monterey, Monterey County

Crushed Rock.

To list the kinds and varieties of rock utilized commercially under this heading would be to run almost the entire gamut of the classification scale. Much depends on the kind available in a given district. Those which give the most satisfactory service are the basalts and other hard, dense, igneous rocks which break with sharp, clean edges. In many localities, river-wash boulders form an important source of such material. In such cases, combined crushing and washing plants obtain varying amounts of sand and gravel along with the crushed sizes. In Sacramento and Butte counties the tailings piles from the gold dredgers are the basis of like operations.

The values given are based on the selling price, f.o.b. cars, barges, or trucks, at the quarry. The 1941 output amounted to 9,789,884 tons valued at $7,432,098, as compared with 7,904,883 tons worth $4,412,314 in 1940.

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Crushed Rock Production, by Counties, for 1941

County	Macadam and ballast		Rubble and riprap		Concrete		Unclassified		Totals	
	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value
Alameda	95,070	$81,611	44,824	$13,937	*	*	[a]680,448	$359,101	820,342	$454,649
Butte	15,286	20,382					*	*	15,286	20,382
Contra Costa	287,003	232,469	70,912	53,369	*	*	294,929	239,922	652,844	525,760
Del Norte			3,000	2,400					3,000	2,400
El Dorado					*	*	[b]3,922	3,646	3,922	3,646
Humboldt			4,200	2,100					4,200	2,100
Imperial	29,200	26,280	60	60					29,260	26,340
Los Angeles	331,450	115,680	*	*	424,697	$175,050	[b]1,691,011	1,250,902	2,447,158	1,541,632
Mariposa							23,150	25,680	23,150	25,680
Mendocino	3,395	3,395					4,500	1,500	7,895	4,895
Modoc	[e]125,370	85,293							125,370	85,293
Nevada							7,930	2,133	7,930	2,133
Orange							[b]41,335	17,668	41,335	17,668
Placer	4,870	4,870	*	*					4,870	4,870
Plumas			20,745	14,157					20,745	14,157
Riverside	25,000	25,000	909,730	1,110,689			*	*	934,730	1,135,689
Sacramento	180,163	203,604	3,795	1,518	*	*	104,908	86,126	288,866	291,248
San Bernardino	*	*			51,488	51,063	*	*	51,488	51,063
San Diego	326,852	268,917	31,311	36,683	178,459	143,057	334	668	536,956	449,325
San Joaquin							83,448	47,579	83,448	47,579
San Luis Obispo	24,824	12,420							24,824	12,420
San Mateo	63,276	46,777	105	105	59,325	59,338	14,936	8,936	137,642	115,156
Santa Barbara	70,500	42,300					151,040	37,760	221,540	80,060
Santa Clara	258,902	132,225			*	*	*	*	258,902	132,225
Shasta	[d]373,976	112,441							373,976	112,441
Siskiyou	[e]285,647	96,216							285,647	96,216
Solano							152,167	117,180	152,167	117,180
Trinity			28,518	15,970					28,518	15,970
Tuolumne	37,425	52,600			*	*			37,425	52,600
Ventura	*	*	*	*	46,835	29,688	*	*	46,835	29,688
Fresno, Kern, Marin, Napa, San Benito, San Bernardino, San Francisco, Sonoma, Ventura*	380,474	281,308							380,474	281,308
Los Angeles, Marin, Napa, Placer, San Francisco, Santa Cruz, Sonoma, Ventura*			81,957	151,613					81,957	151,613
Alameda, Contra Costa, El Dorado, Kern, Marin, Napa, Sacramento, San Benito, San Francisco, Santa Clara, Santa Cruz, Stanislaus, Tuolumne					1,345,114	1,254,346			1,345,114	1,254,346
Butte, Inyo[b], Marin, Monterey[b], Riverside[a], San Bernardino, Santa Clara, Santa Cruz, Sonoma, Stanislaus, Tuolumne, Ventura, Yuba*							312,068	274,366	312,068	274,366
Totals	2,918,683	$1,843,788	1,199,157	$1,402,601	2,105,918	$1,712,542	3,566,126	$2,473,167	9,789,884	$7,432,098

* Combined to conceal output of a single operator in each.
[a] Includes granules for roofing and terrazzo.
[b] Includes decomposed granite.
[d] Includes slag.
[e] Includes volcanic cinder.

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Miscellaneous Stone Production of California, by Years.

The amount and value, annually, of crushed rock (including macadam, ballast, rubble, riprap, and that for concrete), and sand and gravel, since 1893, follow:

Crushed Rock, Sand and Gravel, by Years

Year	Tons	Value	Year	Tons	Value
1893	371,000	$456,075	1918	6,641,144	$3,325,889
1894	661,900	664,838	1919	6,919,188	3,678,322
1895	1,254,688	1,095,939	1920	9,792,122	6,782,414
1896	960,619	839,884	1921	10,914,145	7,834,640
1897	821,123	600,112	1922	13,049,644	10,366,231
1898	1,177,365	814,477	1923	19,840,301	15,379,838
1899	964,898	786,892	1924	21,451,129	15,962,476
1900	789,287	561,642	1925	23,819,137	17,407,113
1901	530,396	641,037	1926	24,987,606	19,859,261
1902	2,056,015	1,249,529	1927	25,126,691	18,912,994
1903	2,215,625	1,673,591	1928	27,471,794	17,328,044
1904	2,296,898	1,641,877	1929	27,104,618	17,840,159
1905	2,624,257	1,716,770	1930	23,514,168	16,430,027
1906	1,555,372	1,418,406	1931	15,848,313	11,848,531
1907	2,288,888	1,915,015	1932	11,361,564	7,183,643
1908	3,998,945	3,241,774	1933	11,181,156	6,871,581
1909	5,531,561	2,708,326	1934	16,148,275	7,131,330
1910	5,827,828	2,777,690	1935	9,041,876	5,571,041
1911	6,487,223	3,610,357	1936	28,528,079	16,578,238
1912	8,044,937	4,532,598	1937	28,254,740	16,917,683
1913	9,817,616	4,823,056	1938	19,051,677	11,734,038
1914	9,288,397	3,960,973	1939	18,693,896	10,316,787
1915	10,879,497	4,609,278	1940	24,184,186	12,181,564
1916	9,951,089	4,009,590	1941	34,626,035	19,559,883
1917	8,069,271	3,505,662			
			Totals	536,016,279	$350,857,115

A comparison of the above table of annual production of these materials with the similar table for cement (see *ante*) reveals the fact that the important growth of the crushed rock and gravel business was coincident with the rapid development of the cement industry from the year 1902.

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CHAPTER FIVE

INDUSTRIAL MATERIALS

Bibliography: State Mineralogist Reports XII-XXXVII (inc.). Bulletin 38. Min. & Sci. Press, Vol. 114, March 10, 1917. Spurr and Wormser, "Marketing of Metals and Minerals." "Non-Metallic Minerals," by R. B. Ladoo. "Industrial Minerals and Rocks," A. I. M. E., 1937. See also under each substance.

The following mineral substances have been arbitrarily arranged under the general heading of 'Industrial Materials,' as distinguished from those which have clearly a defined classification, such as metals, salines, structural materials, etc.

These materials, many of which are mineral earths, are, with four or five exceptions, as yet produced on a comparatively small scale. The possibilities of development along several of these lines are large, and with increasing transportation and other facilities, together with steadily growing demands, the future for this branch of the mineral industry in California is promising. There is scarcely a county in the State but might contribute to the output.

Up to within the last few years, at least, production has been in the majority of instances dependent upon more or less of a strictly local market, and the annual tables show the results of such a condition, not only in the widely varying amounts of a certain material produced from year to year, but in widely varying prices of the same material.

The more important of these minerals thus far exploited, so far as shown by value of the output, are barytes, bentonite (fuller's earth), pottery clay, diatomite, dolomite, gypsum, limestone, mineral water, pumice and volcanic ash, pyrite, silica, and soapstone and talc.

In 1937 the mineral zircon was added to this group. The material mined was used as an abrasive and a refractory.

This group as a whole showed an increase in total value from $6,388,748 in 1940 to $8,502,571 in 1941.

The following table gives the comparative figures for the amounts and value of industrial minerals produced in California during the years 1940 and 1941:

Substance	1940		1941		Increase+ Decrease— Value
	Amount	Value	Amount	Value	
Bentonite	10,360 tons	$174,002	18,369 tons	$164,582	$9,420—
Carbon dioxide	97,660 M.cu.ft.	23,877	138,862 M.cu.ft.	258,563	234,684+
Clay (pottery)	324,399 tons	687,871	551,347 tons	1,217,466	529,595+
Dolomite	18,178 tons	52,167	22,300 tons	64,595	12,428+
Feldspar	3,022 tons	16,644		*	
Gem materials		3,176		870	2,306—
Gypsum	314,834 tons	599,944	432,784 tons	854,184	254,240+
Limestone	563,999 tons	895,832	495,153 tons	801,868	93,964—
Mineral water	16,190,549 gals.	960,701	17,746,256 gals.	988,520	27,819+
Pumice and volcanic ash	35,162 tons	126,516	85,309 tons	283,663	157,147+
Silica (quarts and glass sand)	101,041 tons	376,723	137,660 tons	514,266	137,543+
Soapstone and talc	37,433 tons	329,425	47,935 tons	525,396	195,971+
Strontium	627 tons	8,686		*	
Sulphur	8,156 tons	105,619	9,495 tons	209,296	103,677+
Unapportioned*		[a]1,996,565		[b]2,619,302	622,737+
Totals value		$6,388,748		$8,502,571	
Net increase					$2,113,823

* Included under 'Unapportioned.'

[a] Includes barite, calcium silicate, lithia, mica, pyrite, sillimanite group, zircon.

[b] Includes asbestos, barite, calcium silicate, diatomite, feldspar, lithia, mica, mineral paint, pyrite, sillimanite group, strontium, zircon.

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ASBESTOS

Bibliography: State Mineralogist Reports XII-XIX (inc.), XXII, XXVII (inc.), XXIX, XXXI-XXXII, XXXIV-XXXVII (inc.). Bulletins 38, 91. Canadian Dept. of M., Mines Branch Bulletin 69. Min. and Sci. Press, April 10, 1920, pp. 531-533. Eng. & Min. Jour.-Press, Vol. 113, pp. 617-625, 670-677. Asbestology, Vol. 5, No. 7, July, 1927.

During 1941 there were shipments of tremolite asbestos from one property in Inyo County and short-fiber chrysotile asbestos from a property in Napa County. The annual details are concealed under the 'Unapportioned' item to conceal the output of either producer. The above output of asbestos was the first reported since 1934.

There are two varieties of asbestos, amphibole and serpentine. The most valuable and widely used is the serpentine or chrysotile variety. Chrysotile asbestos has short strong fibers varying in length from $\frac{1}{8}$ of an inch to three inches but mostly less than one inch. The value of the material varies greatly as to the length of the fiber; the longer demanding a premium. It is used as insulation for heat and electricity, in brake linings, steam packing, pipe coverings, in paint, waterproof paper, roofing, cement, stucco, and plasters, in heat resisting textiles, as gloves, curtains, cord, etc.

The amphibole variety may be any one of several minerals of the amphibole group, the fibers of this type are weak and often brittle, and they are much more abundant but their uses are limited and value small; being restricted to heat insulation, chemical filters, and sometimes as a filler.

Asbestos Production of California, by Years.

Total amount and value of asbestos production in California since 1887, as given in the records of this Bureau, are as follows:

Year	Tons	Value	Year	Tons	Value
1887	30	$1,800	1912	90	$2,700
1888	30	1,800	1913	47	1,175
1889	30	1,800	1914	51	1,530
1890	71	4,260	1915	143	2,860
1891	66	3,960	1916	145	2,380
1892	30	1,830	1917	136	10,225
1893	50	2,500	1918	229	9,903
1894	50	2,250	1919	*	
1895	25	1,000	1920	131	6,240
1896			1921	410	19,275
1897			1922	50	1,800
1898	10	200	1923	20	200
1899	30	750	1924	70	4,750
1900	50	1,250	1925	*	
1901	110	4,400	1926	25	1,650
1902			1927	*	
1903			1928	13	1,160
1904	10	162	1929	*	
1905	112	2,625	1930	219	6,175
1906	70	3,500	1931		
1907	70	3,500	1932	*	
1908	70	6,100	1934	309	3,274
1909	65	6,500	1935		
1910	200	20,000	1936		
1911	125	500	1941	*	*
			Totals	3,392	$145,984

* Annual details concealed under 'Unapportioned.'

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BARITE

Bibliography: State Mineralogist Reports XXII, XIV, XV, XVII, XXI-XXVIII (inc.), XXXIV-XXXV (inc.), XXXVII. Bulletins 38, 87. Eng. & Min. Jour.-Press, Vol. 114, p. 109, July 15, 1922; Vol. 115, pp. 319-324, Feb. 17, 1923. U. S. Bureau of Mines, Inform. Circ. 6221, 6223.

During 1941 the barite (including some witherite) produced in California came from three properties, one each in Mariposa, Nevada and Tulare counties, the annual details being concealed in the 'Unapportioned' item so as not to reveal the output of either operator. This material was consumed in the manufacture of lithopone, a heavy-gravity oil-well drilling-mud, fillers, and barium chemicals.

Commercial production of barite in California for 1940 and 1941 amounted to a total of 57,728 net tons worth $377,229 f.o.b. rail shipping point.

Barite's largest use in the United States is in the manufacture of lithopone, which is a chemically-prepared white pigment containing approximately 70% barium sulphate and 30% zinc sulphide. This is one of the principal constituents of 'flat' wall paints. Other important uses for barite, after washing and grinding, are as an inert pigment and filler in paint, paper, linoleums, oilcloth and rubber manufacture, and in the preparation of a number of chemicals including barium binoxide, carbonate, chloride, nitrate, the sulphate precipitated, or 'blanc fixe,' and in medicine.

Present (June 11, 1942) quotations for barite (95% $BaSO_4$) vary from $7.00 to $9.00 per ton, crude, f.o.b. rail shipping point. Most barite has to be washed and acid treated to remove iron stains or other impurities before being suitable for paint use.

Known occurrences of this mineral in California are located in Inyo, Los Angeles, Mariposa, Monterey, Nevada, San Bernardino, Shasta, Santa Barbara and Tulare counties. The deposit at El Portal, in Mariposa County, has given the largest commercial production to date, in part witherite (barium carbonate, $BaCO_3$). Witherite has also been found in Shasta County, but no shipments have yet been made from the deposit. The carbonate is especially desirable, as it is a simpler and hence a cheaper source for preparation of barium chemicals, notably the nitrate which is used in priming mixture for incendiary bombs.

Total Barite Production of California.

The first recorded production of barite in California, according to the statistical reports of the State Mining Bureau, was in 1910. The annual figures are as follows:

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Year	Tons	Value	Year	Tons	Value
1910	860	$5,640	1926	4,978	$38,165
1911	309	2,207	1927	17,993	90,617
1912	564	2,812	1928	13,406	55,888
1913	1,600	3,680	1929	26,796	168,829
1914	2,000	3,000	1930	19,783	133,107
1915	410	620	1931	27,832	156,647
1916	1,606	5,516	1932	8,507	49,409
1917	4,420	25,633	1933	8,405	49,595
1918	100	1,500	1934	21,769	125,514
1919	1,501	18,065	1935	22,979	133,810
1920	3,029	20,795	1936		
1921	901	4,809	1937	* 41,882	245,392
1922	3,370	18,925	1938		
1923	2,925	16,058	1939	* 66,228	396,218
1924			1940	* 57,728	377,229
1925			1941		
			Totals	361,881	$2,149,690

* Annual details concealed under 'Unapportioned.'

BENTONITE (Fuller's Earth)

Bibliography: State Mineralogist Reports XIV, XVII, XVIII, XXI, XXIII, XXV-XXVI (inc.), XXXIV, XXXVI-XXXVII. Bulletins 83, 91. U. S. Bureau of Mines, Bulletin 71, Technical Paper 609. Eng. & Min. Jour.-Press, Vol. 121, pp. 837-842, May 22, 1926.

During 1941 there was produced and shipped in California a total of 18,369 short tons of bentonite clay, valued at $164,582, as compared with 10,360 tons, worth $174,002 for the year 1940. The above came from eight properties, four in San Bernardino County and two each in Kern and Inyo counties.

Previous to 1931 the Division of Mines classed this material under the heading of 'fuller's earth,' but it was thought advisable to change the name to bentonite, owing to the fact that much bentonite is employed in uses that can not be classed as fuller's earth and therefore had been classified in these reports under pottery clay. This was somewhat confusing. Bentonite is the name commonly applied to the clays of the montmorillonite and halloysite group ('rock soap').

Fuller's earth includes many kinds of unctuous clays. It is usually soft, friable, earthly, nonplastic, white and gray to dark green in color, and some varieties disintegrate in water. Production has come mainly from Calaveras and Solano counties, with other deposits noted also in Riverside, Fresno, Inyo and Kern counties.

Bentonite Production of California, by Years.

Bentonite including a small amount of fuller's earth was first produced commercially in this State in 1899, and the total amount and value of the output since that time are as follows:

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Year	Tons	Value	Year	Tons	Value
1899	620	$12,400	1921	1,185	$8,295
1900	500	3,750	1922	6,606	48,756
1901	1,000	19,500	1923	3,650	55,125
1902	987	19,246	1924	5,290	67,295
1903	250	4,750	1925	5,280	91,842
1904	500	9,500	1926	23,552	250,192
1905	1,344	38,000	1927	13,018	154,764
1906	440	10,500	1928	53,232	501,743
1907	100	1,000	1929	15,541	170,563
1908	50	1,000	1930	12,522	177,964
1909	459	7,385	1931	13,960	222,583
1910	340	3,820	1932	4,295	57,670
1911	466	5,294	1933	4,605	60,621
1912	876	6,500	1934	6,168	69,325
1913	460	3,700	1935	10,204	68,372
1914	760	5,928	1936	10,185	165,131
1915	692	4,002	1937	8,425	140,261
1916	110	550	1938	9,374	113,164
1917	220	2,180	1939	11,284	138,854
1918	37	333	1940	10,360	174,002
1919	385	3,810	1941	18,369	164,582
1920	600	6,000			
			Totals	241,400	$2,406,163

CALCIUM SILICATE

Bibliography: State Mineralogist Report XXXIV, Mining and Metallurgy: Oct., 1935.

During 1941 there were commercial shipments of calcium silicate reported in California, coming from one property in Kern County. The annual details are concealed in the 'Unapportioned' item so as not to reveal its output.

The first commercial production of wollastonite was made in 1933 from a deposit operated by John T. Thorndyke in the Radamacher District in Kern County, and was shipped from Code's Siding to Los Angeles, where it is used to manufacture mineral wool. This was done by a new process in an electric furnace where the material is melted without the use of a flux and then blown to a fine fiber or wool by compressed air from jets. Mineral wool is an excellent insulating material for sound, heat and cold, and the manufacturer expects to use large quantities in proposed steel houses. This material, also, can be used in the manufacture of unbreakable glass. Experiments being conducted for several years by Mr. A. M. M. Russell, Testing Engineer of the State Harbor Commission, shows that wollastonite increases the strength of concrete.

Pyroxene is a silicate of calcium and magnesium and is found in crystalline limestone near the contact with intrusive igneous rocks and in basic igneous rocks such as gabbros. It is white to various shades of green, brown to black, having a hardness of 5 to 6 and a specific gravity 3.2 to 3.6.

Wollastonite is a calcium metasilicate ($CaSiO_3$) and usually found in crystalline limestone at the contact with intrusive igneous rocks. It is a white to gray mineral, having a hardness of 4½ to 5 and a specific gravity of about 2.9.

Calcium silicate from 1934 to 1936 was classed in these California mineral production reports as wollastonite.

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CARBON DIOXIDE GAS

Bibliography: State Mineralogist Report XII, XXXVIII.

During 1941 there were two companies producing carbon dioxide from wells near Niland, Imperial County, and one from springs near Hopland, Mendocino County, to a total of 138,862 M. cu. ft. of gas which was converted to 8,808 tons of dry ice worth $258,563.

Carbon dioxide gas is found many places in nature and is produced commercially from wells and springs whose waters are highly charged with the gas. It is used as a gas in the manufacture of carbonate beverages and dry ice, and in the chemical reduction of carbonates; as dry ice and liquefied as a refrigerant, as a source of power, and in the chemical industry. It has been stated that the amount of butyl rubber is only limited by the amount of dry ice available.

Carbon dioxide gas was first produced commercially in California in 1894. This material came from a drift on the 575 level of the Santa Isabel shaft of the New Almaden Quicksilver mine at Almaden, Santa Clara County. The drift was bulkheaded and a pipe was placed through the bulkhead for the gas to be drawn off, it then being compressed into cylinders and used in the manufacture of soda water.

In 1933 carbon dioxide gas was again produced, this time from wells drilled near Niland, Imperial County. On November 1, 1934, a dry-ice plant was put into operation for condensation of the carbon dioxide produced from the above wells.

Carbon Dioxide Gas Production in California, by Years

Year	M cubic feet	Value
1894	80	$4,072
1895	800	12,000
1896	81	1,300
1897		
1933 1934 1935 *	15,440	1,822
1936 1937 *	89,777	64,787
1938 1939 *	131,189	13,799
1940	97,660	23,877
1941	138,862	258,563
Totals	473,889	$380,220

* Annual details concealed under 'Unapportioned.'

CLAY (Pottery)

Bibliography: State Mineralogist Reports I, IV, IX, XII-XV, XVIII-XXVIII (inc.), XXX-XXXIII (inc.), XXXV-XXXVII (inc.). Bulletins 38, 99. Preliminary Report No. 7, U. S. Bureau of Standards, Tech. Paper No. 262.

At one time or another in the history of the State, pottery clay has been mined in thirty-four of its counties. Of these, 21 contributed

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in 1941. In this report, 'pottery clay' refers to all clays used in the manufacture of red and brown earthenware, china and sanitary ware, flower pots, floor, faience and ornamental tiling, architectural terra cotta, sewer pipe, drain and roof tile, etc., and the figures for amount and value are relative to the crude material at the pit without reference to whether the clay was sold in the crude form or was immediately used in the manufacture of any of the above finished products by the producer. It does not include clay used in making brick and hollow building blocks.

There are many other important uses for clay besides pottery manufacture. Among these may be enumerated paper, cotton goods, and chemicals. Clays of the montmorillonite and halloysite group ('rock soap') are being utilized successfully in the manufacture of soaps and for filtering oils and as oil-well drilling mud, also as an earth filler in irrigating ditches which run through porous ground.

During 1941 there was a total of 51 properties in 19 counties which reported a total of 551,347 net tons of pottery clay, valued at $1,217,466 f.o.b. rail shipping point for the crude material, as compared with 52 properties in 21 counties producing 324,399 tons, worth $687,871, in 1940.

Because of the fact that a given product often requires a mixture of several different clays, and that these are not all found in the same pit, it is necessary for most clay-working plants to buy some part of their raw materials from other localities. For these reasons, in compiling the clay industry figures much care is required to avoid duplications. So far as we have been able to segregate the figures, from the data sent in by the operatives, we have credited the clay output to the counties from which the raw material originated; and have deducted tonnages used in brick manufacture, as bricks are classified separately, herein.

A tabulation of the direct returns from the producers, by counties, for the year 1941 is shown herewith:

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Pottery Clay in 1941

County	Tons	Value	Used in the manufacture of
Alameda	12,392	$19,607	Roofing, floor, and mantel tile; chimney, drain, and sewer pipe. Prepared clay and various.
Amador	[a]70,645	130,997	Architectural terra cotta; fire clay and refractories; chimney, drain and sewer pipe; floor, mantel, and roofing tile; art pottery; electrical porcelain; and various.
Kern	[b]69,671	242,547	Oil well drilling mud.
Los Angeles	67,283	127,370	Red earthenware, chimney, drain and sewer pipe; vents; floor, mantel, and roofing tile, art pottery; and various.
Orange	32,007	142,603	Architectural terra cotta; conduits and segment blocks; electrical, porcelain, and chinaware; refractories; vents; drain, floor, and mantel tile; art pottery; and various.
Placer	111,819	155,056	Architectural terra cotta; chimney, drain and sewer pipe; faience; floor, mantel, and roofing tile; red earthenware; electrical porcelain; sanitary ware; and various.
Riverside	122,251	252,371	Conduit, sewer, and drain pipe; red earthenware; faience, floor, mantel, and roofing tile; and various.
San Bernardino	8,243	71,656	Roofing, floor and mantel tile; drain and sewer pipe; red earthenware; refractories; fire sand and various.
Butte, Calaveras, Humboldt, Marin, Sacramento, San Diego, Santa Barbara, Santa Clara, Stanislaus, Sutter, and Ventura [a c]	57,036	75,259	Drain, roofing, and mantel tile; saggers; electrical porcelain; refractories; red earthenware; garden furniture; oil-well drilling-mud; sewer, drain, and conduit pipe; prepared clay, light weight aggregate; and various.
Totals	551,347	$1,217,466	

[a] Includes fire sand.
[b] Includes oil-well drilling mud.
[c] Combined to conceal the output of operators in each.

The above figures do not include clay reported as used in the manufacture of brick and hollow building tile or the bentonite clays, as these are included under separate headings.

POTTERY CLAY PRODUCTS

The output of pottery clay products manufactured in California during 1941 had a total value of $17,394,608, and was a marked increase over the 1940 total which was $12,954,733. The distribution by products for 1941 is shown in the following table:

Product	Number of producers	Tons	Value
Architectural terra cotta, chimney pipe and flue lining	11	16,748	$1,094,383
Drain tile	16	13,085	203,919
Roofing tile	14	27,016	511,854
Floor, faience, mantel, and handmade tile	20	.....	3,106,327
Sewer pipe	8	120,765	3,095,063
Red earthenware	6	.....	368,939
Stoneware and chemical stoneware	6	.....	471,216
Chinaware and semi-vitreous tableware	6	.....	3,176,823
Electrical porcelain	3	.....	437,072
Sanitaryware and plumbing fixtures	3	.....	3,518,227
Conduit	4	19,827	501,771
Garden furniture	3	.....	90,457
Fire clay and high-temperature cement	8	16,146	227,647
Miscellaneous; gas stove vents, art pottery, glass tank backs, clay shapes, light-weight aggregate, grog, segment blocks, specialties, sundries and various	11	.....	590,910
Total value	.....	.....	$17,394,608

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In 1941 all ceramic products showed increases in their total values over that of the previous year, with the exception of roofing tile. In many these increases mark a high for several years.

Pottery Clay Production of California, by Years.

Amount and value of crude pottery clay output in California since 1887 are given in the following table:

Year	Tons	Value	Year	Tons	Value
1887	75,000	$37,500	1915	$157,866	$133,724
1888	75,000	37,500	1916	134,636	146,538
1889	75,000	37,500	1917	166,298	154,602
1890	100,000	50,000	1918	112,423	166,788
1891	100,000	50,000	1919	135,708	245,019
1892	100,000	50,000	1920	203,997	440,689
1893	24,856	67,284	1921	225,120	362,172
1894	28,475	35,073	1922	277,232	473,184
1895	37,660	39,685	1923	376,863	697,841
1896	41,907	62,900	1924	417,928	651,857
1897	24,592	30,290	1925	537,587	674,376
1898	28,947	33,747	1926	801,461	806,509
1899	40,600	42,700	1927	867,419	872,661
1900	59,636	60,956	1928	887,807	1,394,950
1901	55,679	39,144	1929	839,949	1,127,527
1902	67,933	74,163	1930	938,586	795,517
1903	90,972	99,907	1931	332,680	408,931
1904	84,149	81,952	1932	167,284	204,890
1905	133,805	130,146	1933	141,629	211,711
1906	167,267	162,283	1934	190,510	245,900
1907	160,385	254,454	1935	240,014	377,969
1908	208,042	325,147	1936	382,823	646,920
1909	299,424	465,647	1937	354,669	705,200
1910	249,028	324,099	1938	304,564	582,608
1911	224,576	252,759	1939	305,517	611,599
1912	199,605	215,683	1940	324,399	687,871
1913	231,179	261,273	1941	551,347	1,217,363
1914	179,948	167,552	Totals	13,539,881	$18,544,363

DIATOMITE (Diatomaceous Earth)

Bibliography: State Mineralogist Reports II, XII-XV (inc.), XVII-XXVIII (inc.), XXXI, XXXIII, XXXV-XXXVI. Bulletins 38, 67, 91. Am. Inst. Min. Eng., Bull. 104, Aug. 1915, pp. 1539-1550. U. S. Bur. of Mines, Rep. of Investigations: Serial No. 2341, Jan. 1923. Eng. & Min. Jour.-Press, Vol. 115, pp. 1152-1154, June 30, 1923.

Diatomite, also known as diatomaceous earth, infusorial earth, tripolite and kieselguhr, is very light (when dry a cubic foot weighs 18 to 20 pounds) and extremely porous, chalk-like material composed of pure silica (chalk, being calcareous) which has been laid down under water and consists of the remains of microscopical infusoria and diatoms. The former are animal remains, and the latter are from plants.

The most important deposits in California thus far known are located in Los Angeles, Monterey, Orange, San Luis Obispo, and Santa Barbara counties. The diatomaceous earth of marine origin has proved of superior quality for filtration uses which bring the higher prices. Infusorial or diatomaceous earths are also found in Contra Costa, Fresno, Kern, Plumas, San Benito, San Bernardino, San Joaquin, Shasta, Sonoma, and Tehama counties.

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As about 75 percent of the California output is from a single operator, we have concealed the exact figures under the 'Unapportioned' item in the State and county totals. There were three operators during 1941, one each in Los Angeles, Monterey, and Santa Barbara counties. The shipments during the year showed an increase in total tonnage and value compared with 1940.

The material shipped was utilized for insulation of both heat and sound, filtration, paint, pigment, cement admixture, fillers, abrasives and for clarification of gasoline and kerosene.

Total Production of Diatomite in California.

The first recorded production of these materials in California occurred in 1889; total amount and value of output, to date, are as follows:

Year	Tons	Value	Year	Tons	Value
1889	39	$1,335	1916	15,322	$80,649
1890			1917	24,301	127,510
1891			1918	35,963	189,459
1892			1919	40,200	217,800
1893	50	2,000	1920	60,764	1,056,675
1894	51	2,040	1921	*90,739	1,016,675
1895			1922		
1896			1923		
1897	5	200	1924	*193,064	5,729,736
1898			1925		
1899			1926		
1900			1927	*275,403	1,995,923
1901			1928		
1902	422	2,532	1929		
1903	2,703	16,015	1930	*300,017	4,848,661
1904	6,950	112,282	1931		
1905	3,000	15,000	1932		
1906	2,430	14,400	1933	*203,228	3,104,154
1907	2,531	28,948	1934		
1908	2,950	32,012	1935		
1909	500	3,500	1936	*290,908	4,243,572
1910	1,843	17,617	1937		
1911	2,194	19,670	1938		
1912	4,129	17,074	1939	*266,358	3,941,941
1913	8,645	35,968	1940		
1914	12,840	80,350	1941	*	*
1915	12,400	62,000	Totals	1,859,949	$26,875,498

* Annual details concealed under 'Unapportioned.'

DOLOMITE

Bibliography: State Mineralogist Reports XV, XVII, XXVII, XXVIII, XXXI, XXXIII-XXXIV.

The 1941 output of dolomite in California totaled 22,300 net tons, valued at $64,595, and came from two properties in Los Angeles County and one each in Inyo, Monterey, San Benito, and Tuolumne counties; also, but not included in the above figures, was a tonnage of dolomite from Tuolumne County that was burnt for lime; therefore combined with the lime figures. The 1941 production showed an increase in amount and value over those for 1940, which were 18,178 tons, worth $52,167.

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The material shipped was utilized for steel-furnace flux and refractories, plaster, stucco dash-coat, terrazzo, kalsomine, poultry grits, artstone, for the manufacture of CO_2, and mineral wool.

Dolomite Production of California, by Years.

Previous to the 1915 statistical report of the State Mining Bureau, dolomite was included under limestone, as the two minerals are closely related chemically; but since dolomite, as such, has been found to have certain distinctive applications, we here give it a separate classification.

Amount and value of the output of dolomite, annually, have been as follows:

Year	Tons	Value	Year	Tons	Value
1915	4,192	$14,504	1929	58,644	$156,928
1916	13,313	46,566	1930	66,564	161,245
1917	27,911	66,416	1931		
1918	24,560	79,441	1932	35,275	40,956
1919	24,502	67,953	1933	54,456	176,575
1920	42,388	132,791	1934	108,645	304,984
1921	31,195	99,155	1935		
1922	52,409	114,911	1936	25,807	63,102
1923	69,519	142,615	1937	12,371	24,632
1924	28,843	71,271	1938	4,363	18,339
1925	42,852	104,900	1939	17,791	40,391
1926	68,640	119,313	1940	18,178	52,167
1927	45,976	79,442	1941	22,300	64,595
1928	38,379	85,342	Totals	1,039,073	$2,328,525

* Annual details concealed under 'Unapportioned.'

FELDSPAR

Bibliography: State Mineralogist Reports XV, XVII-XXVIII (inc.), XXX, XXXI, XXXIV-XXXVI (inc.). Bulletins 67, 91. U. S. Bureau of Mines, Bulletin 92. Eng. & Min. Jour.-Press, Vol. 115, pp. 535-538, Mar. 24, 1923.

During 1941 feldspar was produced and shipped from two properties in California, one each in San Bernardino and San Diego counties, the annual details being concealed under the 'Unapportioned' item to conceal the output of either property. The above production showed an increase in amount and value over the previous year.

The 1940 output came from one property each in Fresno, San Bernardino, and San Diego counties, and amounted to 3,022 tons valued at $16,644.

The requirements of the pottery trade demand that in general the percentage of free silica associated with the feldspar be less than 20 percent, and in some cases the potters specify less than 5 percent. An important factor, also, is the iron-bearing minerals frequently present in pegmatites and granites, such as biotite (black mica), garnet, hornblende and black tourmaline. Feldspar for pottery uses should be practically free of these. The white, potash-mica, muscovite, is not particularly objectionable except that being in thin, flexible plates, it does not readily grind to a fineness required for the feldspar. It is also used in the manufacture of glass, enamel and sanitary ware, in soaps and abrasives, and as a binder for abrasive wheels, etc., all of which have similar specifications to that for pottery.

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Total Feldspar Production in California.

Total amount and value of feldspar production in California since the inception of the industry are given in the following table, by years:

Year	Tons	Value	Year	Tons	Value
1910	760	$5,720	1927	10,932	$86,101
1911	740	4,560	1928	14,628	93,745
1912	1,382	6,180	1929	13,327	78,404
1913	2,129	7,850	1930	5,014	35,654
1914	3,530	16,565	1931	4,795	59,921
1915	1,800	9,000	1932	2,294	15,988
1916	2,630	14,350	1933	*	
1917	11,792	46,411	1934	2,655	30,611
1918	4,132	22,061	1935	3,265	21,855
1919	1,272	12,965	1936	3,430	24,959
1920	4,518	26,189	1937	2,686	10,930
1921	4,349	28,343	1938	1,378	6,970
1922	4,587	37,109	1939	2,076	12,510
1923	11,100	81,800	1940	3,022	16,644
1924	9,055	68,112	1941	*	*
1925	8,165	59,615			
1926	7,300	56,400	Totals	149,733	$997,527

* Annual details concealed under 'Unapportioned.'

FLUORSPAR

Bibliography: State Mineralogist Reports XVII, XVIII, XXIV, XXVI. Bulletins 67, 91. Eng. & Min. Jour.-Press, Vol. 177, pp. 489-492, Mar. 22, 1924.

During 1941 there was no commercial production of fluorspar reported in California.

Fluorspar, or calcium fluoride, CaF_2, is one of the most important nonmetallic minerals from an industrial standpoint. About 80 percent of the commercial mineral is prepared in the 'gravel' form and utilized as a flux in the manufacture of steel, for which use no substitute has yet been found.

In California deposits have been reported in Los Angeles, Mono, Riverside and San Bernardino counties. A previous commercial production was made in 1917-1918, when a total of 79 tons valued at $991 was shipped from Riverside County, and in 1933-1934 with 227 tons worth $3,631 coming from San Bernardino County.

Present quotations (Metal and Mineral Markets) are: not less than 85 percent CaF_2 and not over 5 percent SiO_2, $25 per ton; No. 2 lump, $25 per ton.

GARNET (Abrasive)

During 1941 the property that shipped abrasive garnets from near Bishop, Inyo County, was shut down. In 1938 and 1939 there were shipments of garnets to the extent of 223 short tons worth $3,375. This was the first commercial production reported in California. The annual figures are concealed under the 'Unapportioned' item so as not to reveal the output of the operator.

Most garnets are utilized on paper and cloth used for woodworking and shoe manufacture and in sand blasting.

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Massive deposits of garnet have been noted in several places in California but little has been done to commercialize them owing to the lack of a market. Recently garnet tailings from some of the tungsten mines have been utilized in airplane factories.

GEMS

Bibliography: State Mineralogist Reports II, XIV, XV, XVII, XVIII, XX, XXI-XXVIII (inc.), XXX-XXXII (inc.), XXXIV-XXXV. Bulletins 37, 67, 91. U. S. G. S., 'Mineral Resources of the U. S.'; Bull. 603, p. 208. Bull. Dept. Geo. Univ. of Cal., Vol. 5, pp. 149-153, 331-380. Am. Jour. Sci., Vol. 31, p. 31.

The production of gem materials in California has been somewhat irregular and uncertain since 1911. The compilation of complete statistics is difficult owing to widely-scattered places at which stones are gathered and marketed, for the most part in a small way. The gem material reported mined and sold during 1941 in California has a total value of $870. This output came from Fresno, Imperial, Modoc, San Diego, and Santa Clara counties and consisted of jasper, Iceland spar, garnets, kunzite, topaz, and tourmaline. The 1941 production showed a decrease in value from that of 1940, which was worth $3,176.

Varieties of California's Gem Stones.

Diamonds have been found in a number of localities in California; but in every case, they have been obtained in stream gravels while working them for gold. The principal districts have been: Volcano in Amador County; Placerville, Smith's Flat and others in El Dorado County; French Corral, Nevada County; Cherokee Flat, Morris Ravine, and Yankee Hill, Butte County; Gopher Hill and upper Spanish Creek, Plumas County. The most productive district of recent years has been Cherokee in Butte County.

California *tourmalines* are decidedly distinctive in coloring and 'fire' as compared to foreign stones of this classification. The colors range from deep ruby to pink, and various shades of green, also blue.

One of our California gem stones, *benitoite,* has not been found elsewhere; and in but a single locality here: The Dallas Mine in San Benito County.

Kunzite, a gem variety of spodumene, was first found in the Pala district in San Diego County. It has thus far been found in only one locality (Madagascar) outside of California. It is of a lilac color, and is described in detail in Bulletin 37 of the State Mining Bureau.

Beryls of excellent fire and delicate colors are also obtained in the Pala district, of which the *aquamarine* (blue) and *morganite* (pink) varieties deserve special mention. Morganite, like kunzite, has thus far been found elsewhere only in Madagascar.

Californite, or 'California jade,' is a gem variety of *idorase* (*vesuvianite*), and is green or white in color. It is found in Butte, Fresno, and Siskiyou counties.

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Stones of precious blue *topaz* of fine quality are being cut from crystals mined in northern San Diego County. They are associated with beryl and blue tourmaline.

Some *rhodonite* has been mined in Siskiyou County, and used for decorative purposes, its value being included in the marble figures.

Garnets are found in a number of localities in California; the important yield of gems being *hyacinth* and *spessartite* varieties from San Diego County.

Chrysoprase has been produced in Tulare County.

Turquoise has been found in the desert section of San Bernardino County, but none produced commercially in recent years.

Sapphires have been reported found in San Bernardino and Riverside counties, but not as yet confirmed. A few have been found in stream gravels with diamonds in Butte County.

Rubies have been identified by the laboratory of the State Mining Bureaus, occurring in limestone from the Baldy Mountains, San Bernardino County. Thus far no stones of commercial size have been taken out.

Total Production of Gem Materials in California.

The value of the gem output in California annually since the beginning of commercial production is as follows:

Year	Value	Year	Value
1900	$20,500	1922	$ 1,312
1901	40,000	1923	13,220
1902	162,100	1924	4,800
1903	110,500	1925	10,663
1904	136,000	1926	9,049
1905	148,500	1927	7,035
1906	497,090	1928	22,200
1907	232,642	1929	26,850
1908	208,950	1930	3,540
1909	193,700	1931	5,607
1910	237,475	1932	4,961
1911	51,824	1933	690
1912	23,050	1934	2,456
1913	13,740	1935	945
1914	3,970	1936	2,878
1915	3,565	1937	2,075
1916	4,752	1938	4,575
1917	3,049	1939	2,500
1918	650	1940	3,176
1919	5,425	1941	870
1920	36,056		
1921	10,954	Total value	$2,273,794

GRAPHITE

Bibliography: State Mineralogist Reports XIII, XIV, XV, XVII, XXVI (inc.), XXX, XXXIII, XXXV. Bulletins 67, 91. U. S. G. S., Min. Res. 1914, Pt. II.

Graphite (also called plumbago) has been produced from time to time in the State, coming principally from Sonoma and Los Angeles counties.

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Occurrences of graphite have been reported at various times from Calaveras, Fresno, Imperial, Inyo, Los Angeles, Mendocino, San Bernardino, San Diego, Siskiyou, Sonoma and Tuolumne counties. From 1931 to 1933 there was a small production of graphite from a property in Los Angeles County.

During 1941 no production of graphite was reported in California. In 1935 there was a small output of graphite coming from a single property in Los Angeles County. This material was used for experimental purposes. The annual details are concealed under the 'Unapportioned' item in order not to reveal the output of the single operator.

The principal value of graphite is on account of its infusibility and resistance to the action of molten metals. It is also largely used in the manufacture of electrical appliances, of 'lead' pencils, as a lubricant, as stove polish, paints and in many other ways. Amorphous graphite, commonly carrying many impurities, brings a much lower price. For some purposes, such as foundry facings, etc., the low-grade material is satisfactory. Among the interesting uses for graphite is the prevention of formation of scale in boilers. The action is a mechanical one. Being soft and slippery, the graphite prevents the particles of scale from adhering to one another or to the boiler and they are thus easily removed.

Graphite Production of California, by Years.

According to the records of the State Mining Bureau, the graphite production of California, by years, has been as follows:

Year	Pounds	Value	Year	Pounds	Value
1901	128,000	$4,480	1923		
1902	84,000	1,680	1925		
1903			1926	*76,000	$13,120
1913	2,500	25	1927		
1914			1928		
1915			1931		
1916	29,190	2,335	1932	*156,000	1,950
1917			1933		
1918			1934		
1919	*770,000	37,225	1935	*	*
1920			1936		
1921					
1922	*624,000	26,160	Totals	1,869,690	$86,975

* Annual details concealed under 'Unapportioned,' on account of a single producer.

GYPSUM

Bibliography: State Mineralogist Reports XIV, XV, XVII, XVIII, XXII, XXIII, XXV-XXVIII (inc.), XXX, XXXI, XXX-XXXVI (inc.). Bulletins 38, 67, 91. U. S. Geol. Surv., Bull. 223, 413, 430, 697. U. S. Bur. of Standards, Circular No. 281.

Shipments of gypsum from California properties during 1941 amounted to 432,784 short tons, valued at $854,184, and came from seven properties in Kern County and one property each in Fresno, Imperial, Riverside, and Ventura counties. In addition to the above figures a considerable amount of gypsum came from Alameda County, which was obtained in a chemical process for reducing magnesium salts from salt-works bittern water with lime, the amount of which

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was not included in the above figures as it was already used with lime and magnesite. The 1941 output was the largest annual yield both in amount and value ever reported in the state and exceeds the 1940 figures (the previous high), which were 314,834 short tons, worth $599,944.

Uses.

The most important use of gypsum from the quantity standpoint is in the calcined form where it is utilized in the manufacture of various hard-wall plasters and plaster board. As plaster of paris, it plays a very important part in surgical work. Approximately 2%, by weight, raw gypsum is added in the manufacture of Portland cement just before the final grinding. In this application, the gypsum acts as a retarder to the set of the cement. The use of gypsum tile for non-bearing fireproof partitions, stairway and elevator enclosures, and the protection of steel columns, girders and beams, has increased greatly.

Keene's cement is a gypsum product, calcined to complete dehydration, and an accelerator added such as alum, potassium sulphate, borax, aluminum sulphate.

Land plaster may be applied to the soil by drilling, or scattered in the hill, or it may be sowed broadcast, in quantities ranging from 200 to 500 pounds to the acre.

Total Production of Gypsum in California.

Production of gypsum annually in California since such records have been compiled by this Bureau is as follows:

Year	Tons	Value	Year	Tons	Value
1887	2,700	$27,000	1915	20,200	$48,953
1888	2,500	25,000	1916	33,384	59,533
1889	3,000	30,000	1917	30,825	56,840
1890	3,000	30,000	1918	19,695	37,176
1891	2,000	20,000	1919	19,813	50,579
1892	2,000	20,000	1920	20,507	92,535
1893	1,620	14,280	1921	37,412	78,875
1894	2,446	24,584	1922	47,084	188,336
1895	5,158	51,014	1923	86,410	289,136
1896	1,310	12,580	1924	25,569	53,210
1897	2,200	19,250	1925	107,613	172,444
1898	3,100	23,600	1926	114,868	211,337
1899	3,663	14,950	1927	94,630	292,090
1900	2,522	10,088	1928	104,790	200,567
1901	3,875	38,750	1929	140,844	396,951
1902	10,200	53,500	1930	116,865	243,507
1903	6,914	46,441	1931	88,354	199,198
1904	8,350	56,592	1932	46,867	93,818
1905	12,859	54,500	1933	59,235	120,451
1906	21,000	69,000	1934	58,149	113,606
1907	8,900	57,700	1935	70,833	151,807
1908	34,600	155,400	1936	143,549	282,703
1909	30,700	138,176	1937	186,160	384,431
1910	45,294	129,152	1938	161,996	327,821
1911	31,457	101,475	1939	219,672	437,343
1912	37,529	117,388	1940	314,843	599,944
1913	47,100	135,050	1941	432,784	854,184
1914	29,734	78,375			
			Totals	3,168,671	$7,591,220

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LIMESTONE

Bibliography: State Mineralogist Reports IV, XII-XV (inc.), XVII-XXXI (inc.), XXXIII-XXXV (inc.), XXXVII. Bulletions 38, 91. Oregon Agr. College Extension Bulletin 305. Eng. and Min. Jour.-Press, Vol. 120, pp. 249-253.

'Industrial' limestone was shipped from 19 properties in 10 counties in California during 1941 and amounted to 459,153 short tons, valued at $801,868. This was a decrease in both amount and value from the 1940 output which was 563,999 tons, worth $895,832. The 1941 yield came from three properties each in El Dorado, San Bernardino, Santa Clara, and Santa Cruz counties; two properties in Tuolumne County; and one each in Inyo, Los Angeles, Riverside, San Luis Obispo, and San Mateo counties.

The amount here does not include the limestone used in the manufacture of cement nor for macadam and concrete, nor of lime for building purposes; but accounts for that utilized as smelter and foundry flux, for glass and sugar making, and other special chemical and manufacturing processes. It also includes that utilized for fertilizers (agricultural 'lime'), 'roofing gravel,' paint and concrete filler, whiting for paint, putty, kalsomine, terrazzo, paving dust, chicken grit, carbon dioxide gas, 'paving compound,' facing dust for concrete pipe, also for rubber and magnesite mix. The material from San Mateo County and part from Santa Clara County was shells, dredged from San Francisco Bay, which were ground and used for agricultural purposes and poultry grit. Of the total 'industrial' limestone produced in 1941 approximately 40,979 tons valued at $225,731, were used for agricultural purposes and poultry grit. Distribution of the 1941 limestone output was as follows:

County	*Tons*	*Value*
El Dorado	75,631	$152,390
San Bernardino	30,603	83,806
Santa Clara	280,125	319,558
Santa Cruz	19,973	96,978
Inyo, Los Angeles, Riverside, San Luis Obispo, San Mateo, Tuolumne *	52,821	149,136
Totals	459,153	$801,868

* Combined to conceal output of individual operators in each.

Limestone Production of California, by Years.

The following tabulation gives the amounts and value of 'industrial' limestone produced in California by years since 1894 when compilation of such records was begun by the State Mining Bureau. These tonnages consist principally of limestone utilized for flux, glass and sugar making, agricultural, chemical, and other special industrial purposes. That utilized in cement manufacture is not included:

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Year	Tons	Value	Year	Tons	Value
1894	15,420	$19,275	1919	88,291	$248,145
1895	71,355	71,690	1920	90,120	298,197
1896	68,184	71,112	1921	75,921	305,912
1897	36,796	38,556	1922	84,382	282,181
1898	27,686	24,548	1923	143,266	348,464
1899	30,769	29,185	1924	219,476	582,660
1900	32,791	31,532	1925	319,977	494,525
1901	76,937	99,445	1926	108,795	367,501
1902	71,422	90,524	1927	699,790	663,957
1903	125,919	163,988	1928	127,895	397,935
1904	40,207	87,207	1929	168,315	557,617
1905	192,749	323,325	1930	169,477	508,751
1906	80,262	162,827	1931	177,268	560,699
1907	230,985	406,041	1932	168,950	487,788
1908	273,890	297,264	1933	207,371	487,712
1909	337,676	419,921	1934	198,057	461,139
1910	684,635	581,208	1935	227,214	496,054
1911	516,398	452,790	1936	295,792	661,757
1912	613,375	570,248	1937	351,755	830,562
1913	301,918	274,455	1938	302,665	729,149
1914	572,272	517,713	1939	316,029	838,235
1915	146,324	156,288	1940	563,999	895,832
1916	187,521	217,733	1941	459,153	801,868
1917	237,279	356,396			
1918	208,566	456,258	Totals	10,744,284	$18,225,169

LITHIA

Bibliography: State Mineralogist Reports II, IV, XIV, XXI, XXX, XXXV. Bulletins 38, 67, 91.

During 1941 lithium salts were again produced in California; but coming from a single property, the figures are concealed under the 'Unapportioned' item. Starting with 1938, material came from the brines of Searles Lake in San Bernardino County at the plant of the American Potash and Chemical Corporation, in the form of sodium-lithium phosphate, and was the first output of this kind, previous production being the mineral lepidolite.

Lithia mica, lepidolite (a silicate of lithium and others), utilized in the manufacture of artificial mineral water, fireworks, glass, etc., has been mined in San Diego County since 1899, except between 1905 and 1915, though there was none shipped in 1923, 1925, 1929-1937 (inc.). During 1930 there was a small amount of lepidolite mined in California, but none shipped. Some amblygonite, a lithium phosphate, is occasionally also obtained from pockets associated with the gem tourmalines.

Lithia minerals total production in the State has been as follows:

Year	Tons	Value	Year	Tons	Value
1899	124	$4,600	1921		
1900	440	11,000	1922	*1,365	$20,781
1901	1,100	27,500	1923		
1902	822	31,880	1924	109	2,269
1903	700	27,300	1925		
1904	641	25,000	1926		
1905	25	276	1927	*550	13,900
1906			1928		
1915	91	1,365	1929		
1916	71	1,065	1938	*	
1917	880	8,800	1939	378	100,338
1918	4,111	73,998	1940	*	
1919	800	14,400	1941	366	84,099
1920	10,046	153,502			
			Totals	22,619	$602,073

* Annual details concealed under 'Unapportioned.'

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MICA

Bibliography: State Mineralogist Reports II, IV, XXVI-XXVIII (inc.), XXX, XXXIII-XXXVI (inc.). Bulletins 38, 67, 91. U. S. Geol. Surv., Bull. 740; Min. Res. of U. S. Eng. & Min. Jour.-Press, Vol. 115, pp. 55-60, Jan. 13, 1923.

Sericite, a fine-grained variety of muscovite, has been produced continuously since 1929 in California with the exception of 1934 and 1939. The 1941 output came from a single property each in Imperial, Inyo, and Mariposa counties. The annual details are concealed in the 'Unapportioned' item so as not to reveal production of the individual operators. The material mined during the year was sericite. Sericite is used as a cheap grade of ground mica for roofing, as a refractory, foundry facing, and decorative material to imitate snow. A small amount of vermiculite, a hydrous mica, expanded by heating and then used as an insulating agent, was mined in 1936.

Classification and Uses.

Practically all marketable mica is of the muscovite or phlogopite varieties. There are three main commercial classes: Sheet mica, including punch; splittings, and scrap. Sheet mica is used chiefly for electrical purposes and for glazing; splittings are made into built-up mica; scrap is ground to a powder. Mica to be classified as sheet must yield a rectangle of at least 1½ x 2 in., must split evenly and freely, be free from cracks, rulings, or plications, and reasonably free from inclusions of foreign matter, though stains of a nonconducting character are permissible for some uses. Ability to withstand heat and high electrical resistance have led to a wide application of sheet mica in the electrical industries. The electrical uses of sheet mica greatly exceed all others in quantity and value of the material used.

As a heat-resisting transparent medium, sheet mica has various uses. It is widely employed for stove windows, though this use has declined to a considerable extent. A hard and rigid mica that is nearly clear is best suited for stove fronts. High-grade stove mica commands a higher price than electrical mica, because for the most part larger sizes are demanded. Mica is also used in furnace and bake-oven sight-holes, heat screens, lamp chimneys, canopies and shades, particularly for gas mantels, and also for military lanterns and in lantern slides.

Its ability to withstand shocks and strains, combined with its transparency, has led to wide use in spectacles, drivers' helmets, smoke helmets, compass cards, gage fronts, and in windows subject to shock, as in the conning towers of warships. On account of its heat-resisting qualities, ground mica is used in railroad car axle packings, foundry facing in pipe and boiler coverings, in fireproof paints, and in rubber tires. Ground mica is used as a component in roofing, as a filler in rubber and other products, in foundry facing, calico printing and as a tire powder. It is used also in tinsel decorations, and as 'Santa Claus snow' for Christmas tree and window decorations. It is used as a lubricant for wooden bearings, and mixed with oil for metal bearings.

The vermiculite variety is any of several hydrous mica minerals which expand upon heating. In recent years they have become valu-

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able as an insulating agent for both heat and sound, when being expanded it often takes on a gold or silver color and is used in window decoration.

Production of mica in California has been as follows:

Year	Tons	Value	Year	Tons	Value
1902	50	$2,500	1935*		
1903	50	3,800	1936	3,833	$15,650
1904	50	3,000	1937*		
1929*			1938	4,969	31,751
1930	2,240	15,260	1939		
1931*			1940*		
1932	1,957	13,963	1941	1,469	11,050
1933*			Totals	14,618	$96,974
1934					

* Annual details concealed under 'Unapportioned.'

MINERAL PAINT

Bibliography: State Mineralogist Reports XII-XIX (inc.), XXI, XXII-XXVIII (inc.), XXXV, XXXVII. Bulletins 38, 91.

During 1941 a single property in San Bernardino County reported shipping mineral paint material, the annual details are concealed under the 'Unapportioned' item so as not to reveal the output of individual producer. This was the first shipment of mineral paint since 1937, when a small amount came from a single property each in Nevada, Placer, and Yuba counties. The material from Nevada and Yuba counties was a limonite and that from Placer County a sienna.

These materials have come from Alameda, Amador, Butte, Calaveras, Colusa, Los Angeles, Napa, Nevada, Placer, Riverside, Shasta, Sonoma, Stanislaus and Ventura counties. There are also other deposits that may have possible commercial value, but as yet there have been no commercial shipments from El Dorado, Imperial, Kern, Kings, Lake, Mendocino, San Diego, Siskiyou, Trinity, and Yuba counties, in which they are found.

Mineral Paint Production of California, by Years.

The first recorded production of mineral paint materials in the State was in the year 1890. The output, showing annual amount and value since that time, is given herewith:

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Year	Tons	Value	Year	Tons	Value
1890	40	$480	1915	311	$1,756
1891	22	880	1916	643	3,960
1892	25	750	1917	520	2,700
1893	590	26,795	1918	728	4,738
1894	610	14,140	1919	1,780	17,055
1895	750	8,425	1920	779	8,477
1896	395	5,540	1921	446	4,748
1897	578	8,165	1922	1,620	13,277
1898	653	9,698	1923	1,049	11,773
1899	1,704	20,294	1924	532	5,234
1900	529	3,993	1925	669	6,969
1901	325	875	1926	569	5,846
1902	589	1,533	1927, 1928 *	919	9,592
1903	2,370	3,720	1929	467	2,820
1904	270	1,985	1930, 1931 *	250	3,000
1905	754	4,025	1932		
1906	250	1,720	1933, 1935, 1936 *	570	5,550
1907	250	1,720	1937	855	5,193
1908	335	2,250	1938		
1909	305	2,325	1941	*	*
1910	200	2,040	Totals	24,572	$232,841
1911	186	1,184			
1912	300	1,800			
1913	303	1,780			
1914	132	847			

* Annual details concealed under 'Unapportioned.'

MINERAL WATER

Bibliography: State Mineralogist Reports VI, XII-XVIII (inc.), XXI-XXIX (inc.), XXXI, XXXIII (inc.), XXXV-XXXVII (inc.), U. S. G. S. Water Supply Paper 338. Min. Res., 1914, 1916. 'Mineral Springs and Health Resorts of California,' by Dr. Winslow Anderson, 1890. U. S. Dept. of Agr., Bur. of Chem., Bulletin 91.

A widespread production of mineral water is shown annually in California. These figures refer to mineral water actually bottled for sale, or for local consumption. Water from some of the springs having a special medicinal value brings a price many times higher than the average shown, while in some cases the water is used merely for drinking purposes and sells for a nominal figure. Health and pleasure resorts are located at many of the springs. The waters of some of the hot springs are not suitable for drinking, but are very efficacious for bathing. From a therapeutic standpoint, California is particularly rich in mineral springs.

The commercial output of mineral water in California during 1941 amounted to 17,746,256 gallons valued at $988,520, as compared with 16,190,549 gallons, worth $960,701, in 1940. The 1941 output came from springs on 38 properties in 18 counties and was distributed as follows:

County	*Gallons*	*Value*
Lake	9,957	$4,635
Los Angeles	8,067,762	693,029
Napa	69,026	19,519
Sonoma	88,756	12,722
Butte, Calaveras, Colusa, Contra Costa, Marin, Orange, Placer, Riverside, San Bernardino, San Diego, San Francisco, San Luis Obispo, Santa Barbara, Siskiyou *	9,510,755	258,615
Totals	17,746,256	$988,520

* Combined to conceal the output of producers in each.

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The production above tabulated came either from springs or artesian wells and was bottled, in part with artificial carbonation, but mostly natural, and sold for drinking purposes. A large part was used in the preparation of soft drinks with flavors.

Mineral Water Production of California, by Years.

Mineral water was bottled for sale, at the Napa Soda Springs, Napa County, as early as 1856,[1] and at other springs in California, notably The Geysers, Sonoma County, also at early dates; but there are no figures available earlier than the year 1887. Amounts and values, annually, since that year are shown herewith:

Year	Gallons	Value	Year	Gallons	Value
1887	618,162	$144,368	1915	2,274,267	$467,738
1888	1,112,202	252,990	1916	2,273,817	410,112
1889	808,625	252,241	1917	1,942,020	340,566
1890	258,722	89,786	1918	1,808,791	375,650
1891	334,553	139,959	1919	2,233,842	340,117
1892	331,875	162,019	1920	2,391,791	421,643
1893	383,179	90,667	1921	3,446,278	367,476
1894	402,275	184,481	1922	4,276,346	486,424
1895	701,397	291,500	1923	5,487,276	616,919
1896	808,843	337,434	1924	8,159,211	818,726
1897	1,508,192	345,863	1925	12,115,072	1,230,455
1898	1,429,809	213,817	1926	14,074,877	1,171,550
1899	1,338,537	406,691	1927	16,644,423	1,487,183
1900	2,456,115	268,607	1928	25,049,002	1,304,969
1901	1,555,328	559,057	1929	27,032,083	2,040,615
1902	1,701,142	612,477	1930	37,354,111	2,870,663
1903	2,056,340	558,201	1931	26,164,331	1,347,860
1904	2,430,320	496,946	1932	19,031,224	1,495,988
1905	2,194,150	538,700	1933	15,650,406	719,746
1906	1,585,690	478,186	1934	19,882,436	1,071,197
1907	2,924,269	544,016	1935	16,659,254	940,333
1908	2,789,715	560,507	1936	19,348,513	777,899
1909	2,449,834	465,488	1937	18,309,729	1,130,810
1910	2,335,259	522,009	1938	26,900,959	853,998
1911	2,637,669	590,654	1939	16,678,741	735,988
1912	2,497,794	529,384	1940	16,190,549	960,701
1913	2,350,792	599,748	1941	17,746,256	988,520
1914	2,443,572	476,169			
			Totals	523,569,965	$36,575,810

PHOSPHATES

Bibliography: State Mineralogist Report XXI. Bulletins 67, 91.

No commercial production of phosphates has been recorded from California, though occasional pockets of the lithium phosphate, amblygonite, Li (AlF) PO_4, have been found associated with the gem tourmaline deposits in San Diego County. Such production has been classified under lithia. In 1938, recovery began on a commercial scale of sodium-lithium phosphate at the plant of the American Potash and Chemical Corporation, at Searles Lake, San Bernardino County. However, the product is sold for its lithium content rather than the phosphate, hence we record it under Lithia.

[1] Cronise, T. F., The natural wealth of California, p. 182, 1868.

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PUMICE and VOLCANIC ASH

Bibliography: State Mineralogist Reports XII, XIV, XV, XVII, XVIII, XXII-XXV (inc.), XXX-XXXII (inc.), XXXIV-XXXVI (inc.). Bulletin 38. U. S. Bureau of Mines, I. G. 6560. (See 'Tufa.')

The output of pumice and volcanic ash in California during 1941 totaled 85,309 short tons, valued at $283,663 f.o.b. rail shipping point. This material came from four properties in Siskiyou County; three each in Inyo and Madera counties; two each in Kern and Mono counties; and one each in Amador, Modoc, and San Luis Obispo counties. The 1941 production was the largest ever reported in this State as to amount and value and a marked increase over that of 1940 which was 35,162 tons, worth $126,516.

The material from Inyo, Modoc, Mono, Napa, and Siskiyou counties and part from Madera County was 75,412 tons of lump pumice, which was used for light-weight aggregate in concrete, acoustic plaster, for abrasive purposes, scouring bricks, insulating, and chickenhouse litter. That from Amador, Kern, and San Luis Obispo counties, and a portion from Madera County was 9,897 tons of volcanic ash or tuff variety, and was employed in making soap, cleanser compounds, as a concrete filler in cement displacement, in asphalt, and as a carrier for dry agricultural sprays. The Kern County ash is going into the preparation of one of our popular and nationally advertised brands of cleanser componds.

Pumice Production of California, by Years.

Commercial production of pumice in California was first reported to the State Mining Bureau in 1909, then not again until 1912, since which year there has been a small annual output, as indicated by the following table:

Year	Tons	Value	Year	Tons	Value
1909	50	$500	1926	7,170	$ 48,350
1910			1927	13,779	168,896
1911			1928	10,440	105,055
1912	100	2,500	1929	10,449	76,123
1913	3,590	4,500	1930	12,947	128,847
1914	50	1,000	1931	11,711	108,130
1915	380	6,400	1932	9,891	86,034
1916	1,246	18,092	1933	8,243	61,067
1917	525	5,295	1934	9,951	54,748
1918	2,114	28,669	1935	14,890	87,055
1919	2,388	43,657	1936	17,132	143,709
1920	1,537	25,890	1937	10,392	79,005
1921	406	6,310	1938	18,783	105,207
1922	613	4,248	1939	41,109	159,951
1923	2,936	16,309	1940	35,162	126,516
1924	4,919	33,404	1941	85,309	283,663
1925	5,319	32,937			
			Totals	333,531	$2,052,067

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PYRITES

Bibliography: State Mineralogist Reports XVIII, XIX, XXII, XXV, XXVI, XXX, XXXV. Bulletins 38, 91. Min. and Sci. Press, Vol. 144, pp. 825, 840.

Pyrite, shipped in California during 1941, came from a single property in Shasta County and showed an increase in both quantity and value over that of 1940. The annual details are placed under 'Unapportioned' to conceal the output of the individual operator.

This material was mostly used in the manufacture of sulphuric acid for explosives and fertilizer. Some iron sulphate had been produced previously and was utilized directly in the preparation of an agricultural fertilizer and insecticide. The sulphur content ranged up to 50.8% S.

This does not include the large quantities of pyrite, chalcopyrite, and other sulphides which are otherwise treated for their valuable metal contents. Some sulphuric acid is annually made as a by-product in the course of roasting certain tonnages of Mother Lode auriferous concentrates while under treatment for their precious metal values.

Pyrites Production in California, by Years.

The total recorded pyrites production in California to date is as follows:

Year	Tons	Value	Year	Tons	Value
1898	6,000	$30,000	1921	110,025	$473,735
1899	5,400	28,620	1922	151,381	570,425
1900	3,642	21,133	1923	148,004	555,308
1901	4,578	18,429	1924	124,214	517,835
1902	17,525	60,306	1925	129,500	528,550
1903	24,311	94,000	1926	100,896	466,088
1904	15,043	62,992	1927	130,910	564,823
1905	15,503	63,958	1928	90,566	400,627
1906	46,689	145,895	1929	79,169	363,717
1907	82,270	251,774	1930	39,958	194,228
1908	107,081	610,335	1931	25,402	131,174
1909	457,867	1,389,802	1932		
1910	42,621	179,862	1933 *	72,271	297,832
1911	54,225	182,954	1934		
1912	69,872	203,470	1935 *	157,129	547,754
1913	79,000	218,537	1936		
1914	79,267	230,058	1937 *	155,107	541,915
1915	92,462	293,148	1938		
1916	120,525	372,969	1939 *	127,604	452,901
1917	111,325	323,704	1940 *	167,711	598,870
1918	128,329	425,012	1941		
1919	147,024	540,300			
1920	146,001	530,581	Totals	3,665,407	$13,483,621

* Annual details concealed under 'Unapportioned.'

SHALE OIL

Bibliography: State Mineralogist Report XIX. U. S. Geol. Surv., Bulletins 322, 729. U. S. Bur. of Mines, Bull. 210, Eng. and Min. Jour.-Press, Vol. 118, No. 8, pp. 290-292, Aug. 23, 1924. Chem. & Met. Eng., Vol. 32, No. 6, Feb. 1925. Min. Congress Jour., Dec. 1924.

Two plants on a more or less experimental scale operated for six years in California, with commercial production beginning in a small way in 1922. The product, in part, was sold for utilization as a flota-

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tion oil in metallurgical work, and part consumed as fuel at the plants. There has been no production reported since 1927.

Shale Oil Production of California, by Years

Year	Barrels	Value
1922–1923*	4,333	$44,262
1924–1925*	8,688	55,240
1926–1927*	8,819	9,998
1928		
Totals	21,840	$109,500

* Annual details concealed under 'Unapportioned.'

SILICA (Sand and Quartz)

Bibliography: State Mineralogist Reports IX, XIV, XV, XVII, XVIII, XX-XXVIII (inc.), XXXI-XXXIII (inc.), XXXV-XXXVII (inc.). Bulletins 38, 67, 91.

We combine these materials because of the overlapping roles of vein quartz which is mined for use in glass making and as an abrasive, and that of silica sand which, although mainly utilized in glass manufacture, also serves as an abrasive. Both varieties are also utilized to some extent in fire-brick manufacture.

We do not include under this heading such forms of silica as: quartzite, sandstone, flint, tripoli, diatomaceous earth, nor the gem forms of 'rock crystal,' amethyst, and opal. Each of these has various industrial uses, which are treated under their own designations.

The 1941 output of silica (quartz and glass sand) in California amounted to a total of 137,660 short tons valued at $514,266 f.o.b. rail shipping point, and came from two properties each in Contra Costa and San Diego counties, and one property each in Kern, Orange, Riverside, and San Bernardino counties. The above were the largest annual figures ever reported in this State and a marked increase over the 1940 totals, which were 101,041 tons, worth $376,723, and the previous high. The 1941 output consisted of 107,679 tons of glass sand and 29,981 tons of boulder quartz.

The glass sand came from Contra Costa, Orange and Riverside counties. For making the higher grades of glass, deposits in Contra Costa County have replaced the sand imported from Belgium. Belgium sand has displaced local material in the manufacture of sodium silicate ('water glass'). There are various deposits of quartz in California which could be utilized for glass making, but to date they have not been so used owing to the cost of grinding and the difficulty of preventing contamination by iron while grinding.

Silica sand has been produced in the following counties of the State: Alameda, Amador, Contra Costa, El Dorado, Imperial, Inyo, Los Angeles, Mariposa, Mono, Monterey, Orange, Placer, Riverside, San Diego, San Joaquin and Tulare, the chief centers being Contra Costa, Amador, Monterey and Los Angeles counties. The industry is of limited importance, so far, because of the fact that much of the available material is not of a grade which will produce first-class color-

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less glass; for such, it must be essentially iron-free. Even a fractional percent of iron imparts a green color to the glass.

The Tariff Act of June 21, 1930, placed a duty on sand, containing 95 per cent or more of *Silica* and not more than six-tenths of 1 per cent of oxide of iron and suitable for use in the manufacture of glass, of $2 per ton.

Total Silica Production in California.

Total silica production in California since the inception of the industry, in 1899, is shown below, being mainly sand:

Year	Tons	Value	Year	Tons	Value
1899	3,000	$3,500	1921	10,569	$49,179
1900	2,200	2,200	1922	9,874	31,016
1901	5,000	16,250	1923	7,964	30,420
1902	4,500	12,225	1924	6,808	35,006
1903	7,725	7,525	1925	12,498	96,780
1904	10,004	12,276	1926	30,010	104,317
1905	9,257	8,121	1927	24,636	94,762
1906	9,750	13,375	1928	14,814	66,679
1907	11,065	8,178	1929	18,686	79,210
1908	9,255	22,045	1930	17,802	71,380
1909	12,259	25,517	1931	43,330	182,769
1910	19,224	18,265	1932	33,997	136,324
1911	8,620	8,672	1933	70,329	266,520
1912	13,075	15,404	1934	70,432	296,643
1913	18,618	21,899	1935	70,835	297,272
1914	28,538	22,688	1936	77,330	310,278
1915	28,904	34,322	1937	84,313	348,987
1916	20,880	48,908	1938	63,167	278,676
1917	19,376	41,166	1939	86,229	349,074
1918	23,257	88,930	1940	101,041	376,723
1919	18,659	101,600	1941	137,660	514,266
1920	25,324	96,793			
			Totals	1,301,304	$4,635,140

SILLIMANITE-ANDALUSITE-KYANITE GROUP

Bibliography: State Mineralogist Reports XX, XXIII, XXIV, XXVII, XXXV-XXXVIII (inc.). Bulletins 67, 91. Dana's Mineralogy. U. S. Geol. Surv., Prof. Paper 110. U. S. Bureau of Mines, Inform. Circ. 6255. Eng. & Min. Jour.-Press. Vol. 120, pp. 91-94, 1925. Amer. Mineralogist, June, 1924.

Sillimanite and andalusite are both aluminum silicates (Al_2SiO_5), having the same composition and formula, but with slightly different physical characteristics. Though both crystallize in the orthorhombic system, their crystal habits are different. A massive deposit of andalusite, found in Dry Creek Canyon in the White Mountains of the Inyo Range, in Mono County, is being mined by the Champion Spark Plug Company of Detroit, Michigan. The material is shipped East and utilized in the manufacture of porcelain for automobile spark plugs, for other high-tension electric insulators, laboratory ware and porcelain. Porcelain made from these minerals can be subjected to sudden and extreme changes in temperature without damage.

Kyanite is also an aluminum silicate (Al_2SiO_5), of the same chemical composition as andalusite and sillimanite, but crystallizing in the triclinic system. A deposit of kyanite is being mined in Imperial County, near Ogilby, by the Vitrefrax Corporation and shipments made to their refractory plant in Los Angeles.

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Dumortierite, though differing somewhat in composition from the above, being a basic aluminum silicate ($HAl_8BSi_3O_{20}$), has proved similar in behavior in ceramic work so that it is now being mixed with andalusite for electrical porcelains. A deposit of this mineral in Nevada is being mined for that purpose. Occurrences of massive dumortierite are known in Imperial and San Diego counties in this State and there may yet be some commercial possibilities for them.

Total Sillimanite Group Production of California, by Years

Year	Tons	Value	Year	Tons	Value
1922 1923 1924 *	4,584	$98,790	1933 1934 1935 *	3,035	$69,026
1925 1926 *	4,810	203,000	1936 *	3,112	89,214
1927 1928 *	4,276	76,000	1937 1938 *	2,681	70,477
1929 1930 *	4,359	198,893	1940 1941 *	1,344	23,391
1931 1932 *	1,244	21,800	Totals	29,445	$850,591

* Annual details concealed under 'Unapportioned.'

SOAPSTONE and TALC

Bibliography: State Mineralogist Reports XII, XIV, XV, XVII-XXVII (inc.), XXX, XXXIII-XXXVII (inc.). Bulletins 38, 67, 91. U. S. Bur. of Mines, Bulletin 213. Rep. of Investigations, Serial No. 2253, May, 1921.

The total output of talc and soapstone in California during 1941 amounted to 47,935 net tons, valued at $525,396. This was an increase over the 1940 production, which was 37,433 tons worth $329,425, and was the largest annual output ever reported in this State. The 1941 output was high grade talc coming from six properties in Inyo County and four properties in San Bernardino County and soapstone from a single property in El Dorado County.

The talc was utilized mainly in toilet powder, paint, paper, for rubber manufacture, in ceramics, etc. The 'soapstone' grades were used mainly for roofing granules and as a filler in roofing paper and part also as an admix in cement.

It is reported that California talc has replaced to some extent imported talc in the toilet trade on the basis of quality. The largest production of talc in the United States comes from New York and Vermont and of massive soapstone from Georgia.

Composition and Varieties.

Talc is hydrous magnesium silicate with the chemical formula $H_2Mg_3(SiO_3)_4$. It is also called soapstone and steatite. The term 'talc' properly includes all forms of the pure mineral, whereas 'steatite' denotes particularly the massive, compact variety, and 'soapstone' the impure, massive forms containing as low as 50% of talc. When pure, talc is soft, having a hardness of 1, but impurities increase the hardness up to 3 or 4. The color varies from pure white and silvery white through gray, green, apple green, to dark green, also yellow,

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brown, and reddish when impure. It is commonly compact or massive, or in fine granular aggregates, and often in foliated plates or in fibrous aggregates.

Uses.

Although the uses of talc and soapstone are many and varied, some of them are not in general well known nor fully developed; and although few of their uses can justly be considered essential in the sense that no substitute can be used, there are several which are of great importance. The widest use of talc is in the powdered form, and the value depends upon color (whiteness), uniformity, fineness of grain, freedom from grit, 'slip,' and sometimes freedom from lime. The white varieties, free from grit and iron, low in lime, ground to 200-mesh and finer, are largely used as a filler for paper, rubber and paint, and the very highest grade as toilet powder. Ground talc is also used in dressing and coating cloth, in making soap, rope, twine, pipe-covering compounds, heavy lubricants, and polishes, and as a filler in concrete to make it waterproof. Ground talc and soapstone are used in ceramic body for tile and china; for foundry facings, either alone or mixed with graphite and a coarser grade is used in the manufacture of asphalt-coated roofing felts and papers, both as a filler and as a surfacing. Massive close-grained talc, free from iron and grit, is cut into blanks and baked, forming the material used for gas tips and electrical insulation, commonly known as 'lava.' Its hardness, its resistance to heat, acid and alkalies, and its great dielectric strength make it very useful for electric insulation, and no satisfactory substitute for it has been found.

Massive varieties of talc, pyrophyllite, and high grades of soapstone are cut into slate pencils and steel-workers' crayons. 'French chalk' or 'tailer's chalk' is a soft, massive talc. In China, Japan and India, massive talc (steatite) is carved into images and other forms, and is often sold as immitation jade. Soapstone is cut into slabs of 1 and 2 inches in thickness and sold as griddles, footwarmers, and fireless-cooker stones, or fabricated into laundry sinks and tubs, laboratory table tops, hoods, tanks and sinks, electric switchboards, and for other uses in which the properties of resistance to heat, acids and alkalies, and electricity are essential.

Talc Production of California, by Years.

Production was intermittent in the State up to 1912; but there has been a material growth since 1916, as shown in the following table:

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Year	Tons	Value	Year	Tons	Value
1893	400	$17,750	1918	11,760	$ 85,534
1894			1919	8,764	115,091
1895	25	375	1920	11,327	221,362
1896			1921	8,752	130,078
1897			1922	13,378	197,186
1898			1923	17,439	252,661
1899			1924	16,179	242,770
1900			1925	15,465	239,084
1901	10	119	1926	17,004	255,645
1902	14	288	1927	16,218	164,744
1903	219	10,124	1928	18,668	251,372
1904	228	2,315	1929	18,676	193,493
1905	300	3,000	1930	15,861	154,258
1906			1931	13,472	109,940
1907			1932	10,690	122,880
1908	3	48	1933	14,451	153,668
1909	33	280	1934	13,920	158,606
1910	740	7,260	1935	17,332	170,830
1911			1936	25,643	309,287
1912	1,750	7,350	1937	29,657	347,772
1913	1,350	6,150	1938	28,346	290,810
1914	1,000	4,500	1939	31,820	372,078
1915	1,663	14,750	1940	37,433	329,425
1916	1,703	9,831	1941	47,935	525,396
1917	5,267	45,279			
			Totals	474,895	$5,622,389

STRONTIUM

Bibliography: State Mineralogist Report XXVI, XXVII, XXXV-XXXVI, XXXVIII. Bulletins 67, 91. U. S. G. S. Bull. 540; 660-I.

During 1941 strontium minerals were mined and shipped from two properties in San Bernardino County and one in Imperial County. The annual details are concealed under the 'Unapportioned' item so as not to reveal the output of the individual. The 1941 production was an increase over that of 1940 which totaled 627 tons worth $8,686. This material was reported to be used for pyrotechnics (red flares), in the refining of sugar, and in a new alloy of steel.

There was a small shipment of strontianite in 1939 from the deposit near Barstow, San Bernardino County, and this was used in a new steel alloy. The last previous production was in 1918, though in that year both celestite ($SrSO_4$), and the carbonate, strontianite ($SrCO_3$) were shipped. The first recorded commercial output of strontium minerals in California was in 1916. The occurrence of the carbonate is particularly interesting and valuable, as it appears to be the only considerable deposit of commercial importance so far opened up in the United States. Shipments reported as averaging 80% $SrCO_3$ have been made. The deposit is associated with deposits of barite near Barstow, San Bernardino County. The carbonate has also been found in massive form near Shoshone, Inyo County. In addition to Imperial County, celestite is found near Calico and Ludlow, and in the Avawatz Mountains in San Bernardino County, but as yet undeveloped.

The principal use for strontium in the United States is in the form of the nitrate in the manufacture of red flares, or Costen and Bengal lights and fireworks.

Production of strontium minerals in California, by years, has been as follows:

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Year	Tons	Value	Year	Tons	Value
1916	57	$2,850	1939	2	82
1917	3,050	37,000	1940	627	8,686
1918	2,900	33,000	1941	*	*
1919			Totals	6,636	$81,618

SULPHUR

Bibliography: State Mineralogist Reports IV, XIII, XIV, XXV, XXXIV, XXXV. Bulletins 38, 67, 91.

During 1941 sulphur was produced in California by two properties in Inyo County and one in Imperial County to the amount of 9,750 tons valued at $209,296 f.o.b. rail shipping point. The 1941 output showed an increase in amount and value as compared with that of 1940, which was 8,803 tons worth $105,619. This mineral has been found to some extent in Alpine, Colusa, Imperial, Inyo, Kern, Lake, Sonoma, Tehama, and Ventura counties.

Total Production of Sulphur in California.

Sulphur was produced at the famous Sulphur Bank mine in Lake County, during the years 1865-1868 (inc.); following which the property became more valuable for its quicksilver. The Elgin quicksilver mine, near Wilbur Springs, Colusa County, is a similar occurrence.

Production of sulphur in California to date:

Year	Tons	Value	Year	Tons	Value
1865			1934	4,412	$67,656
1866	941	$53,500	1935	5,308	61,603
1867			1936		
1868 to 1922			1937	9,451	120,010
1923	185	4,071	1938	4,811	73,741
1924			1939	8,803	105,619
1925 to 1928			1940	9,750	209,296
1929			1941		
1930	265	9,025	Totals	45,917	$737,359
1931					
1932	1,991	32,838			
1933					

* Annual details concealed under 'Unapportioned.'

ZIRCON

Bibliography: State Mineralogist Report XXXIV.

During 1941 there was a small shipment of zircon sand from near Lincoln, Placer County, to the East Coast to be used in a steel alloy. In 1937 for the first time, zircon was reported in commercial quantities, in this State, from the Kaufield dragline dredge near Lincoln. They recovered considerable zircon from their black sand but only shipped a small amount for experimental purposes in the manufacture of refractories and as an abrasive in blast sand.

The chief source of zirconium is the mineral zircon, a zirconium silicate, $ZrSiO_4$. Zircon is used, as a gem, being next to the diamond in brilliancy; as a refractory, molds for steel, insulation in electric heating devices, as a coating on other refractories, coating of welding rods, and in the manufacture of other zirconium compounds.

The metal zirconium is used in radio tubes as an alloy in steel, with copper, etc.

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SALINES

Bibliography: State Mineralogist Reports III, XIV, XV, XVII-XXIX (inc.), XXXIII-XXXVII (inc.). Bulletin 24. Spurr and Wormser, "Marketing of Minerals." "Non-Metallic Minerals," by R. B. Ladoo. "Industrial Minerals and Rocks," A. I. M. E., 1937. See also under each substance.

Under this heading are included borax, common salt, soda, potash, and other alkaline salts. The first two have been produced in a number of localities in California, more or less regularly since the early sixties. Except for a single year's absence, soda has had a continuous production since 1894. Potash, magnesium chloride and sulphate, and calcium chloride have been added to the commercial list in recent years, joined in 1926 by bromide, and in 1931 by iodine and in 1938 by the alum minerals. The nitrates are still prospective.

Our main resources of salines are the lake beds of the desert regions of Imperial, Inyo, Kern, Los Angeles, San Bernardino, and San Luis Obispo counties, and the waters of the Pacific Ocean.

The total value of this group showed a decrease from $13,674,519 in 1940 to $11,927,533 in 1941.

The following table gives details for each year:

Substance	1940		1941		Increase+ Decrease— Value
	Amount	Value	Amount	Value	
Borates	212,358 tons	$5,254,154	224,986 tons	$4,745,872	508,282—
Magnesium salts	4,325 tons	419,666	6,352 tons	654,372	234,706+
Salt	462,282 tons	1,290,728	434,237 tons	1,180,929	109,799—
Soda	228,108 tons	2,339,639	179,210 tons	2,028,718	310,921—
Unapportioned*		4,370,332		3,317,642	1,052,690—
Total value		$13,674,519		$11,927,533	
Net decrease					$1,746,986

* Includes bromine, calcium chloride, iodine, and potash.

ALUM MINERALS

Bibliography: State Mineralogist Report XXXV, XXXVII.

There are several minerals found in California that are considered natural alums. They are hydrous aluminum sulphates combined with sulphates of iron, potassium, sodium or magnesium. The most important are: Alunite, $K_2Al_6(OH)_{12}(SO_4)_4$, a basic hydrous aluminum and potassium sulphate, and Alunogen, $Al_2(SO_4)_3.16H_2O$, an hydrous aluminum sulphate.

In 1938 a small production and some development work was done on an alunogen deposit near Corona, Riverside County. This output was the first recorded commercial production reported in California. The annual details are combined under 'Unapportioned' item to conceal the output of the single operator. An alunite deposit near Glen Ellen, Sonoma County, was opened up several years ago and some development work has been done in hopes of commercializing this mineral.

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BORATES

Bibliography: State Mineralogist Reports III, X, XII-XV (inc.), XVII-XXIII (inc.), XXV-XXVII (inc.), XXXIII-XXXIV, XXXVI, XXXVII. Bulletins 24, 67, 91.

During 1941 there was produced in California a total of 278,451 net tons of borate materials, as compared with 242,419 tons for the year 1940. The material shipped during the year included the sodium borates kernite (rasorite), kramerite from Kern County; also crystallized borax prepared by evaporation of brines at Searles Lake in San Bernardino County and Ownes Lake in Inyo County.

As the crude ore is not sold as such, but is almost entirely refined into borax of commerce before shipping, and as the material varied widely in boric acid content, we have recalculated the tonnage to a basis of 40 per cent A.B.A. This is approximately the average A.B.A. content of colemanite material after calcining, and also of the crystallized borax obtained from evaporation of the lake brines.

Recalculated, the 1941 production totaled 224,986 net tons, valued at $4,745,872, as compared with 212,358 tons, worth $5,254,154 for the year 1940.

Total Production of Borate Materials in California

Borax was first discovered in California in the waters of Tuscan Springs in Tehama County, January 8, 1856. Borax Lake in Lake County was discovered in September of the same year by Dr. John A. Veach. This deposit was worked in 1864-1868, inclusive, and during

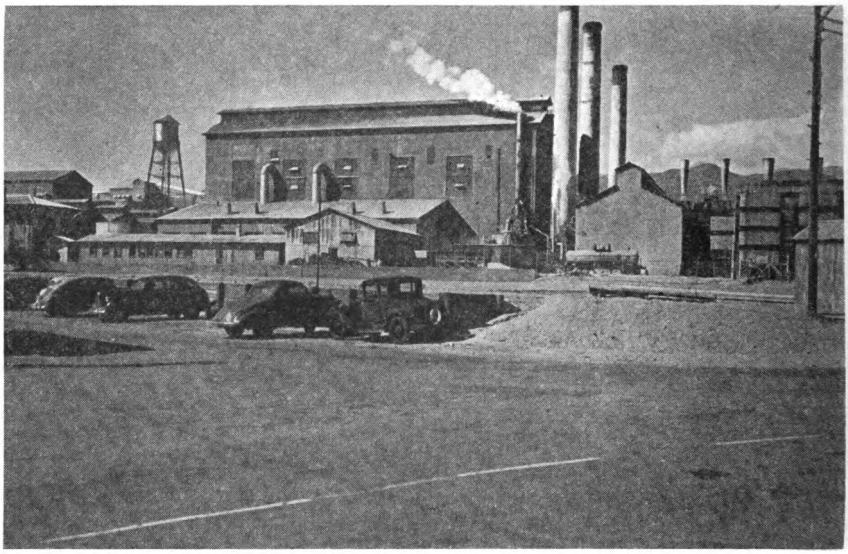

Photo by Walter W. Bradley

FIG. 6. Plant of the American Potash and Chemical Corporation at Trona on Searles Lake, San Bernardino County.

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that time produced 1,181,365 pounds of refined borax. The bulk of it was exported by sea to New York. This was the first commercial output of this salt in the United States, and California is still today the leading American producer of borax, having been for many years the sole producer. California is also the premier world source, today.

Production from the dry lake 'playa' deposits of Inyo and San Bernardino counties began in 1873; but it was not until 1887 that the borax industry was revolutionized by the discovery of the colemanite beds at Calico, in San Bernardino County and later similar beds in Inyo and Los Angeles counties. The colemanite deposits of Ventura County were not worked extensively, owing to lack of transportation facilities. Some production of colemanite has been made from deposits opened up in Clarke County, Nevada. Colemanite was in turn, displaced by the discovery in 1926 of kernite (rasorite) a sodium borate and probertite (kramerite) a hydrous sodium, and calcium borate, near Kramer in Kern County. The brines of Searles Lake are likewise an important source.

The total production of borate materials in California is shown in the following table:

Total Production of Borate Materials in California

Year	Tons	Value	Year	Tons	Value
1864	12	$9,478	1903	34,430	$661,400
1865	126	94,099	1904	45,647	698,810
1866	201	132,538	1905	46,334	1,019,158
1867	220	156,137	1906	58,173	1,182,410
1868	32	22,384	1907	53,413	1,200,913
1869			1908	22,200	1,117,000
1870			1909	16,628	1,163,960
1871			1910	16,828	1,177,960
1872	140	89,600	1911	50,945	1,456,672
1873	515	255,440	1912	42,135	1,122,713
1874	915	259,427	1913	58,051	1,491,530
1875	1,168	289,080	1914	62,500	1,483,500
1876	1,437	312,537	1915	67,004	1,663,521
1877	993	193,705	1916	103,523	2,409,375
1878	373	66,257	1917	109,944	2,561,958
1879	364	65,443	1918	88,772	1,867,908
1880	609	149,245	1919	66,791	1,717,192
1881	690	189,750	1920	127,065	2,794,206
1882	732	201,300	1921	50,136	1,096,326
1883	900	265,500	1922	[2]39,087	1,068,025
1884	1,019	198,705	1923	62,667	1,893,798
1885	942	155,430	1924	52,070	1,599,149
1886	1,285	173,475	1925	46,124	1,526,938
1887	1,015	116,689	1926	47,605	1,625,298
1888	1,405	196,636	1927	72,462	3,043,260
1889	965	145,473	1928	109,722	3,378,552
1890	3,201	480,152	1929	144,678	3,312,085
1891	4,267	640,000	1930	209,869	3,686,817
1892	5,525	838,787	1931	206,405	5,753,037
1893	3,955	593,292	1932	179,356	2,856,470
1894	5,770	807,807	1933	197,495	3,019,513
1895	5,959	595,900	1934	240,696	5,524,262
1896	6,754	675,400	1935	280,249	4,602,064
1897	8,000	1,080,000	1936	313,389	5,911,093
1898	8,300	1,153,000	1937	326,099	6,206,619
1899	20,357	1,139,882	1938	276,144	5,014,237
1900	25,837	1,013,251	1939	244,819	5,110,807
1901	22,221	982,380	1940	212,358	5,254,154
1902	[1]17,202	2,234,994	1941	224,986	4,745,872
			Totals	4,760,205	$118,991,735

[1] Refined borax.
[2] Recalculated to 40% 'anhydrous boric acid' equivalent beginning with 1922.

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BROMINE

Bibliography: State Mineralogist Report XXXVII.

The first commercial production of bromine and bromine compounds was begun during 1926 by the California Chemical Corporation in its plant at Chula Vista, San Diego County, from salt-works bittern waters. This same plant has been recovering magnesium chloride for a number of years. Bromine is also now being made at a similar bittern-water plant at Newark, Alameda County, and beginning in 1940 from brines at Searles Lake, San Bernardino County. The 1941 output, a decrease in amount and value as compared with that of 1940. The 1940 yield was the largest annual production on record in California; annual details of which are concealed under the 'Unapportioned' item so as not to reveal the production of the single company which operated both plants.

The total commercial production of bromine in California is as follows:

Year	Tons	Value	Year	Tons	Value
1926 1927 1928 *	158	$120,480	1932 1933 1934 *	559	$146,547
1929 1930 1931 *	802	552,933	1935 1936 *	805	191,465
			1937 1938 *	914	327,823
			1939 1940 1941	1,579 *	528,245 *
			Totals	4,817	$1,867,493

* Annual details concealed under 'Unapportioned.'

CALCIUM CHLORIDE

Bibliography: State Mineralogist Report XXXVII U. S. Geol. Surv. Min. Res. 1919, Pt. II. Engineering and Contracting, Roads and Streets, monthly issue, Feb. 6, 1924. 'How to Maintain Roads,' manual of instruction of Dow Chemical Company.

Calcium chloride is hygroscopic, that is, it has an affinity for water. This property is taken advantage of by utilizing this salt as a drying agent.

During 1941 the production of calcium chloride in California came from one property each in Imperial and San Bernardino counties. The annual details are combined under the 'Unapportioned' item to conceal the output of the operator. The 1941 output showed an increase in both amount and value as compared with that of 1940.

Total Calcium Chloride Production in California

Commercial production of calcium chloride in California was first reported to the State Mining Bureau in 1921, from two plants in San Bernardino County, being obtained as a by-product in the refining of

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salt from deposits in certain of the desert dry lakes. Total production in California is shown in the following tabulation:

Year	Tons	Value	Year	Tons	Value
1921	683	$22,980	1932	3,103	$15,500
1922	1,204	26,580	1933		
1923			1934	4,048	16,196
1924	10,988	328,876	1935		
1925			1936	7,227	35,073
1926	34,195	508,748	1937		
1927			1938	7,279	40,182
1928	12,020	114,080	1939		
1929			1940	7,134	28,856
1930	9,688	103,237	1941		
1931			Totals	97,569	$1,240,308

* Annual details concealed under 'Unapportioned.'

IODINE

Bibliography: State Mineralogist Reports XXXIV, XXXVI-XXXVII. U. S. Bureau of Mines I. C. 6387.

In 1941 the output of iodine in California came from two plants in Los Angeles County and showed an increase in value as compared with that of 1940. The annual details for 1941 are combined under the 'Unapportioned' item to conceal the output of either operator. The combined 1939–1940 production came from three plants in Los Angeles County, and amounted to 795,510 pounds, valued at $862,931.

Total Iodine Production in California

Iodine was first produced in California during 1917 to 1921 as a by-product of potash which was reduced from kelp in an experimental station of U. S. Department of Agriculture at Summerland, but after the armistice the demand for these minerals decreased so that the plant in Santa Barbara County closed. In 1929 the General Salt Company erected a plant which reduces iodine from the waste waters of certain deep oil wells in the Long Beach field. During 1933 two more plants started operation, making a total of three producing plants in the State.

Year	Pounds	Value
1929		
1931	696,297	$1,374,311
1933		
1934	355,279	423,016
1935	487,401	379,702
1936		
1937	624,318	508,119
1938		
1939	795,510	862,931
1940	*	*
1941		
Totals	2,958,805	$3,521,079

* Annual details concealed under 'Unapportioned.'

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MAGNESIUM SALTS

Bibliography: State Mineralogist Reports XX, XXI, XXV-XXVI (inc.), XXXIV, XXXVII. Bulletin 91. 'Dictionary of Applied Chemistry,' by Thorpe. U. S. Geol. Surv., Min. Res. of P. S.

During 1941 there was an output of magnesium salts in California, coming from one plant in San Diego County and two in San Mateo County, amounting to 6,352 short tons, valued at $654,372 and which consisted of the chloride, carbonate, hydroxide, and oxide. The 1940 production amounted to 4,325 short tons, worth $419,666, which was also the chloride, carbonate, hydroxide, and oxide. Also coming from Alameda County was a tonnage of magnesium hydroxide but not included in the above totals as this material was used as magnesite and therefore included under that substance. The chloride was nearly all sold for use in magnesite stucco and cement mixtures (Sorel cement), also some for road liquor. The carbonate, or bulky white powder, was used as a heat-insulating material, as a substitute for magnesite, as a filler for rubber, paper, paint, etc., and in medicines, in tooth paste, in face powder and as a polish for metal and glass. The sulphate market as in past years was utilized for medicinal and bath purposes. The material coming from San Diego County was residual bitterns from the salt plants and was in part marketed in the liquid form carrying from 35% to 67% $MgCl_2$ and in part as dry crystals, while that from Alameda and San Mateo counties was magnesium carbonate, magnesium hydroxide, and magnesium oxide, obtained by precipitation from sea water.

The average value reported for the chloride produced in California in 1941 was approximately $31.63 per ton f.o.b. plant, as compared with $29.84 in 1940.

Total Production of Magnesium Salts in California

Commercial production of magnesium chloride in California was begun in 1916 by some of the salt companies, from the residual bitterns obtained during the evaporation of sea water for its sodium chloride. In addition, some magnesium sulphate, or 'epsom salts' has also been made, but in smaller amount, and magnesium carbonate by a patented process, direct from sea water.

The total production of magnesium salts in California, since the beginning of the industry here, is shown in the following tabulation:

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Year	Tons	Value	Year	Tons	Value
1916	851	$6,407	1929		
1917	1,064	34,973	1930	4,914	$333,906
1918	1,008	29,955	1931		
1919	1,616	82,457	1932	2,749	217,979
1920	3,150	107,787	1933	2,073	159,660
1921	4,153	106,140	1934	2,325	194,642
1922	3,036	89,788	1935	2,785	235,531
1923	3,662	116,031	1936	3,798	347,838
1924	4,823	145,883	1937	3,867	316,669
1925	4,221	132,553	1938	24,176	469,636
1926	4,881	124,470	1939	3,895	382,457
1927			1940	4,325	419,666
1928	6,241	139,589	1941	6,352	654,372
			Totals	99,965	$4,848,389

* Annual details concealed under 'Unapportioned.'

NITRATES

Bibliography: State Mineralogist Reports XV, XXV, XXVI, XXVII, XXXIV, XXXVII. Bulletins 24, 67, 91. U. S. G. S., Press Bulletin No. 373, July, 1918. Smithsonian Inst., Publ. No. 2421, 1916.

Nitrates of sodium, potassium and calcium have been found in various places in the desert regions of the State, but no deposit of commercial value has been developed as yet. It is hoped that a closer search may some day be rewarded by workable discoveries. At present the principal commercial source of nitrates is the Chilean saltpeter (sodium nitrate) deposits in South America.

The fixation of atmospheric nitrogen electrically has been accomplished successfully in Germany and Scandinavia. The possibilities of cheap hydroelectric power in California make the subject one of interest to us, as we have also the natural raw materials and chemicals to go with the explosives. Sodium and potasium cyanides can be made by fixation of atmospheric nitrogen electrically.

POTASH

Bibliography: State Mineralogist Reports XV, XVIII, XX, XXII, XXV-XXXVII (inc.) XXXIV, XXXVII. Bulletins 24, 67, 91. U. S. G. S., Min Res. 1913, 1914, 1915. Senate Doc. No. 190, 62 Congress, 2d Session. Mining & Sci Press, Vol. 112, p. 155; Vol. 114, p. 789. Eng. & Min. Jour-Press, Vol. 117, p. 557, Apr. 5, 1924.

The 1941 production of potash in California came from a single operator in San Bernardino County, the details of which are concealed under the 'Unapportioned' item. This was principally chloride and the product averaged 60% equivalent K_2O content. The material was sold mainly for fertilizer manufacture.

Quotations (September 7, 1942) were $36.25 per ton c. i. f. Atlantic and Gulf ports for high grade sulphate (90%-95%).

Total Production of Potash in California

Potash production began commercially in California in 1914, with a small yield from kelp. Practically all of the output now comes from

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deposits of potash-bearing residues and brines in the old lake beds of the desert regions, particularly Searles Lake, San Bernardino County. A small amount has been made from salt-works bitterns, and for a time there was some from Portland cement dust. Some also has been obtained from molasses distillery-slops char.

The annual amounts and values of these potash materials, since their beginning in California in 1914, have been as follows:

Year	Tons	Value	Year	Tons	Value
1914	10	$460	1928–1941*	178,680	$5,522,350
1915	1,076	19,391		172,263	5,500,536
1916	17,808	663,605		153,147	3,932,721
1917	129,022	4,202,889		355,604	3,750,809
1918	49,381	6,808,976		358,417	6,988,922
1919	28,118	2,415,963		383,981	9,057,866
1920	26,298	1,465,463		310,023	6,058,274
1921	14,806	390,210			
1922	17,776	584,388			
1923	29,597	709,836			
1924	33,107	747,407			
1925	36,355	829,770			
1926	32,884	812,285			
1927	67,340	1,952,852			
			Totals	2,295,793	$61,419,973

* Annual details concealed under 'Unapportioned.'

SALT

Bibliography: State Mineralogist Reports II, XII-XV (inc.), XVII-XXIII (inc.), XXV-XXVII (inc.), XXXIV-XXXVII (inc.). Bulletins 24, 67, 91. U. S. Geol. Survey, Bull. 669. U. S. Bur. of Mines, Bull. 146.

Most of the salt production in California is obtained by evaporation of water of the Pacific Ocean, plants being located on the shores of San Francisco, Monterey, and San Diego bays, and at Long Beach. Additional amounts are derived from lakes and lake beds in the desert regions (in part, rock salt), mainly in Imperial, Kern, and San Bernardino counties, and evaporation of alkaline lake water in Modoc County. A small amount of valuable medicinal salts has been obtained by evaporation of the water of Lake Mono, Mono County, and from a mineral spring in Butte County.

During 1941 there was an output of salt in California of 434,237 short tons, valued at $1,180,929, as compared with 462,282 tons, worth $1,290,728, in 1940. There were 12 operating plants in 1941; three in Alameda County; two each in Imperial and San Bernardino counties, and one each in Kern, Los Angeles, Monterey, Orange, and San Diego counties.

The average value reported by salt producers in California in 1941 was $2.72 per ton f.o.b. plant, compared with $2.79 in 1940, $2.75 in 1939, $2.78 in 1938, $2.82 in 1937, $3.08 in 1936, and $3.36 in 1935.

Production of Salt in California, by Years

Although salt has been made in California since the early '60's, there are no definite or authenticated records for the earlier years

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before the beginning of the statistical tabulations by the State Mining Bureau.

Amount and value of annual production of salt in California from 1887 is shown in the following tabulation:

Year	Tons	Value	Year	Tons	Value
1887	28,000	$112,000	1915	169,028	$368,737
1888	30,800	92,400	1916	186,148	455,695
1889	21,000	63,000	1917	227,825	584,373
1890	8,729	57,085	1918	212,076	806,328
1891	20,094	90,303	1919	233,994	896,963
1892	23,570	104,788	1920	230,638	972,648
1893	50,500	213,000	1921	197,989	832,702
1894	49,131	140,087	1922	223,238	819,187
1895	53,031	150,576	1923	275,979	1,130,670
1896	64,743	153,244	1924	318,800	1,159,137
1897	67,851	157,520	1925	284,068	949,826
1898	93,421	170,855	1926	311,761	1,124,978
1899	82,654	149,588	1927	263,028	639,127
1900	89,338	204,754	1928	340,580	1,024,656
1901	126,218	366,376	1929	392,039	2,665,436
1902	115,208	205,876	1930	347,945	1,167,487
1903	102,895	211,365	1931	330,951	1,233,567
1904	95,968	187,300	1932	256,353	918,480
1905	77,118	141,925	1933	321,312	1,251,024
1906	101,650	213,228	1934	332,194	1,222,810
1907	88,063	310,967	1935	365,711	1,230,480
1908	121,764	281,469	1936	398,249	1,227,505
1909	155,680	414,708	1937	370,431	1,044,325
1910	174,920	395,417	1938	395,746	1,099,737
1911	173,332	324,255	1939	417,956	1,174,386
1912	185,721	383,370	1940	462,282	1,290,728
1913	204,407	462,681	1941	434,237	1,180,929
1914	223,806	583,553	Totals	10,929,170	$34,813,611

SODA

Bibliography: State Mineralogist Reports XII, XIII, XV, XVII, XVIII, XX, XXII, XXIII, XXV-XXIX (inc.), XXXIV, XXXVI-XXXVII. Bulletins 24, 67, 91. U. S. Geol. Surv., Bull. 717.

The production of sodium salts in California in 1940 included soda ash, and trona, from plants at Owens Lake, Inyo County; and soda ash, salt cake, and trona (sequi-carbonate, a double salt of Na_2Co_3 and $NaHCO_3$) from Searles Lake, San Bernardino County. A property near Bertram, Imperial County, and the plant at Dale Lake, near Amboy, San Bernardino County, started operations and made shipments of salt-cake during the year. There were no shipments of salt cake (sulphate) from Carrizo Plains, San Luis Obispo County.

Shipments were made in 1941 amounting to 179,210 short tons, valued at $2,028,718, as compared with 228,108 tons, worth $2,339,639, in 1940. The 1940 output of soda was the largest annual production reported in California. Of the 1941 output 129,971 tons were trona and soda ash and 49,239 tons salt cake. The soda ash was used mainly in the manufacture of soap, glass, paper, oil refining, sugar refining, and chemicals; and the trona for metallurgical purposes. The salt cake or sodium sulphate was used in the manufacture of paper, glass, and in chemicals.

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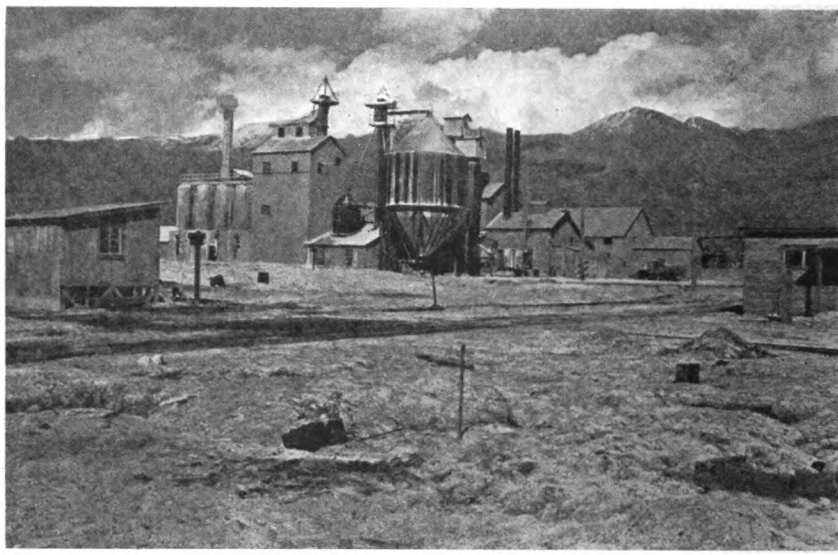

Photo by Walter W. Bradley

FIG. 7. Plant of Natural Soda Products Corporation at Keeler, on Owens Lake, Inyo County.

Soda Production of California, by Years

The total output, showing amount and value of these materials in California since the inception of the statistical records of the State Mining Bureau, is given in the table which follows:

Year	Tons	Value	Year	Tons	Value
1894	1,530	$20,000	1918	20,447	$855,423
1895	1,900	47,500	1919	21,294	721,958
1896	3,000	65,000	1920	32,407	1,164,898
1897	5,000	110,000	1921	14,828	438,996
1898	7,000	154,000	1922	20,084	573,661
1899	10,000	250,000	1923	34,885	764,284
1900	1,000	50,000	1924	32,536	711,796
1901	8,000	400,000	1925	48,625	947,649
1902	7,000	50,000	1926	63,333	1,305,802
1903	18,000	27,000	1927	62,571	1,478,239
1904	12,000	18,000	1928	80,838	1,469,297
1905	15,000	22,500	1929	90,646	1,838,657
1906	12,000	18,000	1930	90,122	1,627,344
1907			1931	78,701	1,217,811
1908	9,600	14,400	1932	58,017	826,369
1909	7,712	11,593	1933	70,598	1,019,130
1910	8,125	11,862	1934	99,380	1,219,561
1911	9,023	52,887	1935	125,504	1,341,045
1912	7,200	37,094	1936	144,314	1,412,788
1913	1,861	24,936	1937	153,685	1,461,057
1914	6,522	115,396	1938	178,105	2,023,610
1915	5,799	83,485	1939	200,049	2,055,608
1916	10,593	264,825	1940	228,108	2,339,639
1917	24,505	928,578	1941	179,210	2,028,718
			Totals	2,420,657	$33,620,396

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BY COUNTIES

Introductory.

The State of California includes a total area of 158,297 square miles, of which 156,803 square miles are of land (according to 1940 census resurvey). The maximum width is 235 miles, the minimum 148 miles, and the length from the northwest corner to the southeast corner is 775 miles. The State is divided into fifty-eight counties. The 1940 census figures show a total population for California of 6,907,387. Minerals of commercial value exist in every county, and during 1940 some active production was reported to the State Division of Mines from all of the fifty-eight.

Rank of Counties in Mineral Yield, 1941.

Of the ten leading counties in point of total value of mineral output during 1941, the first five, viz., Los Angeles, Kern, Fresno, Ventura, Orange; and Kings, seventh, and Santa Barbara, ninth, owe their position to petroleum and natural gas. Los Angeles County, due to crude oil, led all other counties in 1941 and is credited with 27% of the State's total mineral value, holding this position since 1923 when it passed Kern County, which led previously for many years. San Bernardino (sixth) owes its position to cement, borates, and potash. Nevada (eighth) owes its position to gold; and Sacramento (tenth) to gold.

There were thirty-eight counties having a mineral production valued in excess of a million dollars in 1941; in fifteen of which gold was an important item; in seven each, cement and petroleum; in six, natural gas; in five, miscellaneous stone; in two each, borates, brick and hollow building tile, and quicksilver; and in one each, diatomite, potash, soda, and tungsten ore.

In point of variety and diversity San Bernardino County led all others in 1941 with thirty-one different mineral substances on its commercial list, followed by: Inyo and Los Angeles counties each with twenty-one; Kern County with twenty; Imperial County with seventeen; San Diego County with sixteen; Fresno County with fifteen; Orange County with fourteen; Placer, Riverside, Sacramento, and Tuolumne counties each with thirteen; Calaveras, El Dorado, Napa, San Luis Obispo, Santa Barbara, and Siskiyou counties each with eleven; and Amador, Butte, Santa Clara, Shasta, and Trinity counties each with ten.

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County	Value	County	Value
1. Los Angeles	$101,657,195	31. San Diego	$1,411,934
2. Kern	70,854,548	32. Mariposa	1,327,594
3. Fresno	23,751,031	33. Stanislaus	1,325,932
4. Ventura	21,430,061	34. Sonoma	1,187,406
5. Orange	19,399,481	35. Tuolumne	1,142,905
6. San Bernardino	16,953,033	36. Solano	1,141,335
7. Kings	11,300,067	37. Lake	1,091,883
8. Nevada	10,255,176	38. Napa	1,019,184
9. Santa Barbara	10,018,726	39. Sierra	964,347
10. Sacramento	7,484,001	40. Imperial	578,808
11. Riverside	6,351,012	41. San Luis Obispo	572,025
12. Santa Calar	5,832,080	42. Mono	544,547
13. Inyo	5,020,026	43. Monterey	419,372
14. Alameda	4,447,145	44. Yolo	281,303
15. Calaveras	4,394,039	45. Tulare	272,661
16. Shasta	3,758,848	46. Marin	186,322
17. Amador	3,724,412	47. Madera	180,330
18. San Mateo	3,425,263	48. Modoc	125,427
19. Yuba	3,265,986	49. Sutter	121,848
20. Contra Costa	3,263,091	50. Del Norte	112,253
21. Santa Cruz	3,260,828	51. Humboldt	85,267
22. Butte	3,171,872	52. Mendocino	75,074
23. Merced	2,579,986	53. San Francisco	56,187
24. Siskiyou	2,578,223	54. Colusa	41,859
25. Plumas	2,370,901	55. Lassen	39,322
26. El Dorado	2,294,164	56. Glenn	33,204
27. San Benito	1,988,205	57. Alpine	6,996
28. San Joaquin	1,832,699	58. Tehama	2,925
29. Placer	1,759,591		
30. Trinity	1,556,365	Total value	$374,326,228

ALAMEDA

Land area: 732 square miles.
Population: 513,011 (1940 census).
Location: East side of San Francisco Bay.
County seat: Oakland.
References: State Mineralogist Report XVII : XVIII : XX : XXVI (Oct., 1929); XXXV.

Alameda, while in no sense one of the 'mining counties' came fourteenth on the list of counties as to value, with a mineral production for 1941 worth $4,447,145 and had eight different substances. This was an increase over the 1940 output which was valued at $3,697,648.

Commercial production for 1941 was as follows:

Substance	Amount	Value
Clay (pottery)	12,392 tons	$19,607
Stone, miscellaneous	-----	2,372,864
Unapportioned *	-----	2,054,674
Total value		$4,447,145

* Includes brick and hollow building tile, bromine, lime, magnesite, salt.

ALPINE

Land area: 776 square miles.
Population: 323 (1940 census).
Location: On eastern border of State, south of Lake Tahoe.
County seat: Markleeville.
References: State Mineralogist Report XV : XVII : XVIII : XXVII (Oct., 1931) : XXV : XXXVII.

Alpine County ranked fifty-seventh in value of output for 1941 which was $6,996, compared with $18,211 in 1940. The 1941 production was gold, silver, and miscellaneous stone.

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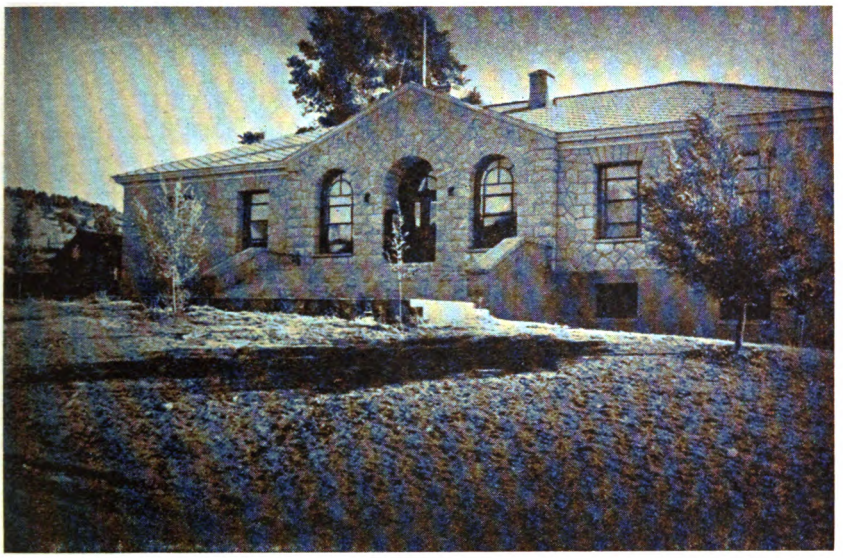

Photo by Walter W. Bradley

FIG. 8. Alpine County Court House at Markleeville, of local building stone.

AMADOR

Land area: 601 square miles.
Population: 8,973 (1940 census).
Location: East-central part of State—Mother Lode District.
County seat: Jackson.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XX : XXII (April, 1927) : XXX : XXXV : XXXVII.

Amador County ranked seventeenth as to value of mineral output for 1941 with ten different substances worth $3,724,412, compared with $4,284,886 in 1940.

Amador at one time led the State in gold production, though exceeded in 1920-1923 and in 1926-1927 by Yuba and Nevada counties; but in 1925 and 1928 by Yuba only, in 1929-1930 by Nevada only, and in 1931-1936 and 1939-1941 by Nevada and Sacramento.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Clay (pottery)	70,645 tons	$130,997
Copper	11,941 lbs.	1,409
Gold	------	3,499,300
Lead	13,396 lbs.	764
Silver	23,275 fine ozs.	16,551
Stone, miscellaneous	------	6,088
Unapportioned *	------	69,303
Total value		$3,724,412

* Includes brick, volcanic ash, slate.

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BUTTE

Land area: 1722 square miles.
Population: 42,840 (1940 census).
Location: North-central portion of State.
County seat: Oroville.
References: State Mineralogist Report XV : XVII : XVIII : XXIV : XXVI (Oct., 1930) : XXXI (Jan., 1936).

Butte County ranked twenty-second in regard to value of mineral output in 1941 and fifth in respect to gold, with ten different substances, having a total value of $3,171,872 compared with $2,722,816 in 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	------	$2,981,090
Silver	29,765 fine ozs.	21,166
Stone, miscellaneous	------	166,947
Unapportioned *	------	2,669
Total value		$3,171,872

* Includes clay (pottery), copper, lead, mineral water, natural gas, platinum.

CALAVERAS

Land Area: 1027 square miles.
Population: 8,221 (1940 census).
Location: East-central portion of State—Mother Lode District.
County seat: San Andreas.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXI : XXXII (July, 1936) : XXXV : XXXVII.

Calaveras County ranked fifteenth in California in regard to value of mineral output in 1941, and sixth in respect to gold, with a total of $4,394,039, as compared with $4,233,835 in 1940.

Commercial production for 1941 consisting of eleven different substances, was as follows:

Substance	*Amount*	*Value*
Copper	7,076 lbs.	$835
Gold	------	2,613,380
Silver	14,920 fine ozs.	10,610
Stone, miscellaneous	------	29,410
Unapportioned *	------	1,739,804
Total value		$4,394,039

* Includes cement, chromite, clay (pottery), lead, platinum, tubemill pebbles.

COLUSA

Land Area: 1140 square miles.
Population: 9,788 (1940 census).
Location: Sacramento Valley.
County seat: Colusa.
References: State Mineralogist Report XIV : XVII : XVIII : XXV (April, 1929) : XXXV.

Colusa County ranked fifty-fourth in regard to the value of mineral output in 1941, with four different mineral substances, worth a total of $41,859, as compared with $45,337 in 1940.

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Commercial production for 1941 consisted of mineral water, quicksilver, sandstone, and miscellaneous stone.

CONTRA COSTA

Land area: 714 square miles.
Population: 100,450 (1940 census).
Location: East side of San Francisco Bay.
County seat: Martinez.
References: State Mineralogist Report XVII : XVIII : XXIII (Jan., 1927) : XXXV.

Contra Costa County stands twentieth on the list in respect to value of mineral output for 1941, with eight different substances worth $3,263,091, as compared with $1,960,631 in 1940.

Substance	*Amount*	*Value*
Stone, miscellaneous	------	$769,537
Unapportioned *	------	2,493,554
Total value		$3,263,091

* Includes brick and hollow building tile, cement, mineral water, natural gas, quicksilver, silica (glass sand).

DEL NORTE

Land area: 1024 square miles.
Population: 4,745 (1940 census).
Location: Extreme northwest corner of State.
County seat: Crescent City.
References: State Mineralogist Report XIV : XVII : XXI (July, 1925) : XXIX (Jan.-April, 1933) : XXXIV : XXXV : XXXVII.

Del Norte County was in fiftieth place as to mineral production for 1941 with five different substances worth $112,253, as compared with $24,689 in 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--	$1,365
Silver	3 fine ozs.	2
Stone, miscellaneous	--	18,250
Unapportioned *	--	92,636
Total value		$112,253

* Includes chromite and platinum.

EL DORADO

Land area: 1753 square miles.
Population: 13,229 (1940 census).
Location: East-central portion of the State, northernmost of the Mother Lode counties.
County seat: Placerville.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XX : XXII (Oct., 1926) : XXXI : XXXIV (July, 1938) : XXXV : XXXVIII.

El Dorado, which contains the location where gold in California was first heralded to the world, comes twenty-sixth on the list of coun-

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ties ranked according to value for 1941, with eleven different mineral substances worth $2,294,164. In addition to the segregated figures here given, a large tonnage of limestone was formerly shipped for use in cement manufacture, the value being included in the State's total for cement. The 1940 output was valued at $2,094,405.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	957 lbs.	$113
Gold	------	1,547,630
Limestone	75,631 tons	152,390
Silver	5,929 fine ozs.	4,216
Stone, miscellaneous	------	90,241
Unapportioned *	------	580,574
Total value		$2,294,164

* Includes chromite, lead, lime, slate, soapstone.

FRESNO

Land area: 5950 square miles.
Population: 178,565 (1940 census).
Location: South-central portion of State.
County seat: Fresno.
References: State Mineralogist Report XIV : XVII : XVIII : XXV (July, 1929) : XXXV : XXXVII.

Fresno County, third in importance as a mineral producer among the counties of California, reports an output for 1941 of fifteen different mineral substances, with a total value of $23,751,031, as compared with the 1940 value of $22,103,968.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	---------	$214,060
Natural gas	68,694,072 M. cu. ft.	3,468,495
Petroleum	20,302,492 bbls.	19,560,723
Quicksilver	183 flasks	31,909
Silver	976 fine ozs.	694
Stone, miscellaneous	---------	264,008
Unapportioned *	---------	211,142
Total value		$23,751,031

* Includes brick and hollow building tile, chromite, copper, gems, granite, gypsum, platinum, tungsten ore.

GLENN

Land area: 1259 square miles.
Population: 12,195 (1940 census).
Location: West side of Sacramento Valley.
County seat: Willows.
References: State Mineralogist Report XIV : XVII : XVIII : XXXV : XXXVII.

Glenn County stands fifty-sixth as a mineral producing county of the State for 1941, and owes its position mainly to the presence of large deposits of sand and gravel, much of which is used as railroad ballast.

Commercial production for 1941 totaled $33,204 which is an increase from $16,891, the 1940 total.

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HUMBOLDT

Land area: 3634 square miles.
Population: 45,812 (1940 census).
Location: Northwestern portion of State, bordering on Pacific Ocean.
County seat: Eureka.
References: State Mineralogist Report XIV : XVII : XVIII : XXI (July, 1925) : XXXV : XXXVII (Oct., 1941).

Humboldt County ranked fifty-first in the value of its mineral output among the counties of the State for 1941 with nine different mineral substances valued at $85,267, compared with the 1940 output worth $133,590.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--	$13,370
Silver	55 fine ozs.	39
Stone, miscellaneous	--	53,392
Unapportioned *	--	18,466
Total value		$85,267

* Includes brick, chromite, clay (pottery), natural gas, platinum.

IMPERIAL

Land area: 4089 square miles.
Population: 59,740 (1940 census).
Location: Extreme southeast corner of the State.
County seat: El Centro.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXII (April, 1926) : XXXIV-XXXVI (inc.), XXXVIII (April, 1942).

Imperial County ranked fortieth in total value of mineral output for 1941, with seventeen different mineral substances, worth $578,808, compared with $461,180 for 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	---	$86,765
Silver	509 fine ozs.	362
Stone, miscellaneous	---	65,203
Unapportioned *	---	426,478
Total value		$578,808

* Includes calcium chloride, carbon dioxide, copper, gems, gypsum, manganese, mica schist, salt, kyanite, soda (salt cake), strontium, sulphur.

INYO

Land area: 10,019 square miles.
Population: 7625 (1940 census).
Location: Lies on eastern border of State, north of San Bernardino County.
County seat: Independence.
References: State Mineralogist Report XV : XVII : XVIII : XX : XXII (Oct., 1926) : XXVII : XXX : XXXIII : XXXIV (Oct., 1938) : XXXV-XXXVII (inc.).

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Inyo County's mineral output for 1941 reached a total value of $5,020,026, having twenty different mineral substances and standing thirteenth among the counties of the State as to value of production. The 1940 yield was worth $2,855,646.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	281,211 lbs.	$33,183
Gold	----------	563,360
Lead	6,603,348 lbs.	376,391
Silver	159,227 fine ozs.	113,228
Stone, miscellaneous	----------	25,090
Tungsten	117,166 units	2,868,870
Zinc	438,475 lbs.	32,886
Talc	20,003 tons	255,775
Unapportioned *	----------	751,243
Total value		**$5,020,026**

* Includes antimony, asbestos, bentonite, borates, dolomite, iron ore, limestone, mica schist, molybdenum ore, pumice, soda, sulphur.

KERN

Land area: 8003 square miles.
Population: 135,124 (1940 census).
Location: South-central portion of State.
County seat: Bakersfield.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXV (Jan., 1929) : XXIX (July-Oct., 1933) : XXX : XXXIV - XXXVII (inc.).

Kern County, because of its immensely productive oil fields, for many years stood preeminent among all counties of California in the value of its mineral output. It was surpassed by Los Angeles and Orange counties in 1923, but by Los Angeles only in 1924-1941, for which petroleum is responsible; it also rates sixth as a gold producing county. The 1941 production consisted of twenty different mineral substances valued at $70,854,548, compared with the 1940 output worth $62,855,732.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Clay (pottery and oil well drilling mud)	69,671 tons	$242,547
Copper	5,146 lbs.	609
Gold	----------	2,800,980
Lead	31,589 lbs.	1,801
Gypsum	112,088 tons	203,506
Natural gas	91,807,125 M. cu. ft.	4,573,754
Petroleum	65,628,935 bbls.	57,607,724
Silver	868,192 fine ozs.	617,381
Stone, miscellaneous	----------	347,459
Tungsten	4,414 units	114,754
Unapportioned *	----------	4,344,033
Total value		**$70,854,548**

* Includes antimony, bentonite, borates, brick, calcium silicate, cement, volcanic ash, salt, silica (quartz).

KINGS

Land area: 1559 square miles.
Population: 35,168 (1940 census).
Location: South-central portion of the State.
County seat: Hanford.
References: State Mineralogist Report XIV : XVII : XVIII : XXVI (Oct., 1930) : XXXV.

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Kings County, previous to the discovery of Kettleman Hills oil fields in 1928, had little or no mineral output, but in 1929 it ranked ninth in total value of annual mineral production, seventh in 1930, 1938 and 1941, third in 1931, eighth in 1936-1937, sixth in 1939.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Natural gas	29,639,352 M. cu. ft.	$1,818,088
Petroleum	7,789,574 bbls.	9,479,813
Other minerals	---	2,166
Total value		$11,300,067

LAKE

Land area: 1278 square miles.
Population: 8,069 (1940 census).
Location: About fifty miles north of San Francisco Bay and the same distance inland from the Pacific Ocean.
County seat: Lakeport.
References: State Mineralogist Report XIV : XVII : XVIII : XX : XXV (July, 1929) : XXXIV : XXXV.

Lake County was in thirty-seventh place as to the value of mineral output for 1941, with four different mineral substances, worth $1,091,883 compared with $884,427 in 1940.

Commercial production in 1941 was as follows:

Substance	*Amount*	*Value*
Mineral water	9,957 gals.	$4,635
Quicksilver	6,053 flasks	1,045,726
Stone, miscellaneous	----	41,447
Other minerals	----	75
Total value		$1,091,883

LASSEN

Land area: 4531 square miles.
Population: 14,479 (1940 census).
Location: Northeast portion of State.
County seat: Susanville.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XXV (Jan., 1929) : XXX : XXXII (Oct., 1936).

Lassen County was in fifty-fifth place as a mineral producer for 1941, with an output of $39,322 compared with $14,869 which was the value for the previous year.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	----	$2,135
Silver	----	44
Stone, miscellaneous	----	36,942
Unapportioned *	----	201
Total value		$39,322

* Includes copper and granite.

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LOS ANGELES

Land area: 4067 square miles.
Population: 2,785,643 (1940 census).
Location: One of the southwestern coast counties.
County seat: Los Angeles.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XX : XXIII (July, 1927) : XXX : XXXIII (July, 1937) : XXXIV-XXXVI.

The mineral production of Los Angeles County for the year 1941 amounted in value to $101,657,195 as compared with the 1940 total worth $98,183,754. This accounted for 27% of the entire State's total for 1941 and ranked Los Angeles first in the State as a mineral producer.

Commercial production for 1941 consisted of twenty-one substances and was as follows:

Substance	*Amount*	*Value*
Brick	51,096 M.	$1,408,213
Building tile	3,160 tons	38,212
Clay (pottery)	67,283 tons	127,370
Copper	1,111 lbs.	131
Gold	-------	180,985
Mineral water	8,067,762 gals.	693,029
Natural gas	99,507,975 M. cu. ft.	6,192,819
Petroleum	86,550,854 bbls.	87,264,337
Silver	2,287 fine ozs.	1,626
Stone, miscellaneous	-------	4,865,007
Unapportioned *	-------	885,466
Total value		$101,657,195

* Includes cement (see county or origin of clinker), lead, diatomite, dolomite, granite (mica schist), iodine, limestone, marble (limestone), salt, titanium.

MADERA

Land area: 2112 square miles.
Population: 23,314 (1940 census).
Location: East-central portion of State.
County seat: Madera.
References: State Mineralogist Report XIV : XVII : XVIII : XXIV (Oct., 1928) : XXX : XXXI : XXXIV : XXXVII.

Madera County was in forty-seventh place as a mineral producer for 1941, with an output of seven different mineral substances valued at $180,330, compared with $110,074 for 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	---	$52,395
Silver	471 fine ozs.	335
Unapportioned *	---	127,600
Total value		$180,330

* Includes granite, pumice, volcanic ash, miscellaneous stone, tungsten.

MARIN

Land area: 529 square miles.
Population: 52,907 (1940 census).
Location: Adjoins San Francisco on the north.
County seat: San Rafael.
References: State Mineralogist Report XIV : XVII : XVIII : XXII (July, 1926) : XXIX : XXXV.

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Marin County had forty-sixth place as to the value of mineral output for 1941, with four different mineral substances. The total was $186,322, compared with $151,800 in 1940.

Commercial production included mineral water, crushed rock, sand and gravel.

MARIPOSA

Land area: 1453 square miles.
Population: 5,605 (1940 census).
Location: Most southerly of the Mother Lode counties. East central portion of State.
County seat: Mariposa.
References: State Mineralogist Report XIV : XVII : XVIII : XXIV (April, 1928) : XXXI (Jan., 1935) : XXXV : XXXVII.

Mariposa County is one of the distinctly *mining* counties of the State, although it stands but thirty-second on the list of counties in regard to the value of its mineral output for 1941, with a total of $1,327,594 as compared with $1,224,336 for 1940. Mariposa County is also the source of a large tonnage of limestone annually, which is otherwise credited to cement manufacture in Merced County.

Commercial production with eight different mineral substances for 1941, was as follows:

Substance	*Amount*	*Value*
Copper	5,908 lbs.	$697
Gold	-----	1,141,070
Lead	7,302 lbs.	416
Silver	10,101 fine ozs.	7,183
Stone, miscellaneous	-----	45,363
Unapportioned *	-----	132,865
Total value		$1,327,594

* Includes barite and mica schist.

MENDOCINO

Land area: 3452 square miles.
Population: 27,864 (1940 census).
Location: Joins Humboldt County on the south and bounded by the Pacific Ocean on the west.
County seat: Ukiah.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXXV.

Mendocino County's mineral output for 1941 was valued at $75,074 which gave it a rank of fifty-second among the counties of the State as a mineral producer with $109,110 for 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Stone, miscellaneous	--------	$43,890
Unapportioned *	--------	31,184
Total value		$75,074

* Includes carbon dioxide, coal, natural gas, platinum.

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MERCED

Land area: 1995 square miles.
Population: 46,988 (1940 census).
Location: About the geographical center of the State.
County seat: Merced.
References: State Mineralogist Report XIV : XVII : XVIII : XXI (April, 1925) : XXXI (Jan., 1935) : XXXV.

Merced County ranked twenty-third as to the value of mineral output for 1941, with five different mineral substances worth $2,579,986 compared with $2,514,323 for 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	----	$1,550,955
Silver	4,555 fine ozs.	3,239
Stone, miscellaneous	----	101,687
Other minerals	----	924,105
Total value		$2,579,986

MODOC

Land area: 3823 square miles.
Population: 8,713 (1940 census).
Location: The extreme northeast corner of the State.
County seat: Alturas.
References: State Mineralogist Report XV : XVII : XVIII : XXV (Jan., 1929) : XXX : XXXII (Oct., 1936) : XXXV.

Modoc County, in forty-eighth place for 1941, with five different mineral substances, reported a commercial production as follows:

Substance	*Amount*	*Value*
Stone, miscellaneous	--------	$105,218
Unapportioned *	--------	20,209
Total value		$125,427

* Includes gems, pumice, quicksilver.

MONO

Land area: 3030 square miles.
Population: 2,299 (1940 census).
Location: Is bordered by the State of Nevada on the east and is about in the central portion of the State measured on a north and south line.
County seat: Bridgeport.
References: State Mineralogist Report XV : XVII : XVIII : XX : XXIII (Oct., 1927) : XXX : XXXIV : XXXV : XXXVI (April, 1940) : XXXVII.

Mono County in forty-second place with eight different mineral substances, reported a commercial production for 1941 as follows:

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Substance	Amount	Value
Copper	960 lbs.	$113
Gold	-----	332,675
Lead	14,400 lbs.	821
Silver	44,446 fine ozs.	31,606
Stone, miscellaneous	-----	16,809
Unapportioned *	-----	162,523
Total value		$544,547

* Includes pumice, andalusite, tungsten.

MONTEREY

Land area: 3330 square miles.
Population: 73,032 (1940 census).
Location: West-central portion of State, bordering on Pacific Ocean.
County seat: Salinas.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XXI (Jan., 1925) : XXXI : XXXIV : XXXV.

Monterey County had nine different mineral substances during 1941, having a total value of $419,372, as compared with $307,177 for 1940.

In forty-third place, commercial production for 1941 was as follows:

Substance	Amount	Value
Gold	--	$595
Silver	7 fine ozs.	5
Stone, miscellaneous	--	360,162
Unapportioned *	--	58,610
Total value		$419,372

* Includes diatomite, dolomite, quicksilver, salt, sandstone.

NAPA

Land area: 783 square miles.
Population: 28,503 (1940 census).
Location: Directly north of San Francisco Bay—one of the 'bay counties.'
County seat: Napa.
References: State Mineralogist Report XIV : XVII : XVIII : XX : XXV (April, 1929) : XXXV.

In 1941 the value of Napa County's mineral output was $1,019,184, placing it in thirty-eighth place on the list of counties, as compared with $829,589 for 1940.

With eleven different mineral substances, commercial production for 1941 was as follows:

Substance	Amount	Value
Copper	2,406 lbs.	$284
Gold	-----	12,750
Mineral water	69,026 gals.	19,519
Quicksilver	1,999 flasks	337,726
Silver	36,121 fine ozs.	25,686
Unapportioned *	-----	623,719
Total value		$1,019,184

* Includes asbestos, chromite, pumice, miscellaneous stone, sandstone.

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NEVADA

Land area: 974 square miles.
Population: 19,283 (1940 census).
Location: North of Lake Tahoe on the eastern border of the State.
County seat: Nevada City.
References: State Mineralogist Report XVI : XVII : XVIII : XIX : XX : XXVI (April, 1930) : XXXI : XXXII : XXXV : XXXVII (July, 1941).

Nevada County, one of the mountain counties of California, for some years alternated with Amador in the gold lead, but both were passed by Yuba in 1918-1921, also 1923. In 1922, 1924, 1929 to 1938, 1940 Nevada led all counties in gold output, though it held third place in 1925 and 1928, and second place in 1926 and 1927. Nevada County stands eighth on the list of counties in regard to value of its mineral output for 1941 with seven different mineral substances worth $10,255,176, as compared with $11,351,165 for 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	24,617 lbs.	$2,905
Gold	-------	9,872,275
Lead	10,234 lbs.	583
Silver	444,735 fine ozs.	316,256
Stone, miscellaneous	-------	6,157
Other minerals	-------	57,000
Total value		$10,255,176

ORANGE

Land area: 795 square miles.
Population: 130,760 (1940 census).
Location: Southwest portion of the State, bordering Pacific Ocean.
County seat: Santa Ana.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XX : XXI (Jan., 1925) : XXXI : XXXV, XXXVII.

Orange County, in fifth place as to value of mineral output for 1941, produced fourteen mineral substances, worth $19,399,481, compared with $17,575,147 in 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Clay (pottery)	32,007 tons	$142,603
Gold	-------	630
Lead	10,196 lbs.	581
Natural gas	15,568,540 M. cu. ft.	992,116
Petroleum	19,962,737 bbls.	17,987,662
Silver	4,846 fine ozs.	3,446
Stone, miscellaneous	-------	238,021
Zinc	31,979 lbs.	2,398
Unapportioned *	-------	32,024
Total value		$19,399,481

* Includes brick, copper, mineral water, salt, silica (glass sand).

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PLACER

Land area: 1395 square miles.
Population: 28,108 (1940 census).
Location: Eastern border of State directly west of Lake Tahoe.
County seat: Auburn.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XX : XXIII (July, 1937) : XXXI : XXXII (Jan., 1936).

Placer County, in twenty-ninth place, with thirteen different mineral substances, had a commercial production for 1941 as follows, compared with $2,023,484 for the previous year.

Substance	*Amount*	*Value*
Clay (pottery)	11,819 tons	$155,056
Copper	9,383 lbs.	1,107
Gold	------	1,441,755
Lead	43,573 lbs.	2,484
Silver	56,426 fine ozs.	40,125
Stone, miscellaneous	------	20,873
Unapportioned *	------	98,191
Total value		$1,759,591

* Includes brick and hollow building tile, chromite, granite, mineral water, platinum, zircon sand.

PLUMAS

Land area: 2594 square miles.
Population: 11,548 (1940 census).
Location: Northeastern border of State, south of Lassen County.
County seat: Quincy.
References: State Mineralogist Report XVI : XVII : XVIII : XIX : XX : XXIV (Oct., 1928) : XXIX : XXX : XXXIII (April, 1937), XXXVII.

Plumas County's mineral output for 1941 with eight different mineral substances was valued at $2,370,901 as compared with $2,743,608 in 1940.

In twenty-fifth place, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	7,510,414 lbs.	$886,229
Gold	------	1,268,960
Lead	72,104 lbs.	4,110
Silver	180,615	128,437
Stone, miscellaneous	--------	71,203
Unapportioned *	--------	11,962
Total value		$2,370,901

* Includes chromite, manganese ore, platinum.

RIVERSIDE

Land area: 7240 square miles.
Population: 105,524 (1940 census).
Location: Southern portion of State.
County seat: Riverside.
References: State Mineralogist Report XV : XVII : XVIII : XX : XXV (Oct., 1929) : XXX : XXXI : XXXIV - XXXVI, XXXVII.

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Riverside is the fourth county in the State in size and the eleventh in regard to the total value of mineral output for 1941. Within its borders are included mountains, desert, and agricultural land. In point of variety Riverside County showed thirteen different mineral substances commercially produced in 1941 with a total value of $6,351,012, as compared with the 1940 output which was valued at $3,918,747.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Clay (pottery)	122,251 tons	$252,371
Gold	------	59,430
Silver	32,400 fine ozs.	23,040
Stone, miscellaneous	------	1,327,548
Unapportioned *	------	4,688,623
Total value		$6,351,012

* Includes brick and hollow building tile, cement, granite, gypsum, limestone, mineral water, silica (glass sand), sandstone.

SACRAMENTO

Land area: 983 square miles.
Population: 170,333 (1940 census).
Location: North-central portion of State.
County seat: Sacramento.
References: State Mineralogist Report XV : XVII : XVIII : XX : XXI (Jan., 1925) : XXXI.

Sacramento stands tenth among the counties of the State as a mineral producer; the output, principally gold, for 1941 being valued at $7,484,001, as compared with the 1940 production worth $5,928,834. In regard to gold output alone, this county ranks second, being exceeded by Nevada, the Sacramento product coming from the dredges. With thirteen mineral substances, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--------	$6,287,575
Natural gas	4,005,707 M. cu. ft.	355,397
Silver	10,232 fine ozs.	7,276
Stone, miscellaneous	--------	703,243
Unapportioned *	--------	130,510
Total value		$7,484,001

* Includes brick and hollow building tile, clay (pottery), copper, lead, granite, petroleum, paving blocks, platinum.

SAN BENITO

Land area: 1392 square miles.
Population: 11,392 (1940 census).
Location: West-central portion of State.
County seat: Hollister.
References: State Mineralogist Report XV : XVII : XVIII : XX : XXII (April, 1926) : XXXIV : XXXV.

San Benito County ranked twenty-seventh among the counties in regard to the value of total mining production for 1941, having an output worth $1,988,205 as compared with $1,401,496 for the previous year.

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Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Quicksilver	6,254 flasks	$1,077,693
Unapportioned *	----	910,512
Total value		$1,988,205

* Includes antimony, cement, dolomite, miscellaneous stone.

SAN BERNARDINO

Land area: 20,157 square miles.
Population: 161,108 (1940 census).
Location: Southeastern portion of State.
County seat: San Bernardino.
References: State Mineralogist Report XV : XVII : XVIII : XIX : XXVI (July, 1930) : XXVII (July, 1931) : XXX : XXXIV-XXXVII (inc.).

San Bernardino, by far the largest county in the State in area, ranked sixth in regard to the value of mineral output for 1941, with a total of $16,953,033, as compared with $15,772,742, the total for 1940.

San Bernardino, for several years (except for 1918) had led all other counties in the State in point of variety of minerals, producing commercially in 1941, a total of thirty-one different substances.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Bentonite	10,451 tons	$97,961
Clay (pottery)	8,243 tons	71,656
Copper	111,077 lbs.	13,107
Gold	----	593,145
Lead	78,991 lbs.	4,502
Limestone	30,603 tons	83,806
Silver	162,893 fine ozs.	115,835
Talc	26,681 tons	**263,742**
Stone, miscellaneous	----	306,804
Zinc	410,158 lbs.	30,762
Unapportioned *	----	15,371,603
Total value		$16,953,033

* Includes antimony, borates, brick, bromine, calcium chloride, cement, feldspar, granite, iron ore, lime, lithia, manganese ore, mineral paint, mineral water, potash, quicksilver, salt, silica (quartz), soda and salt cake, strontium, tungsten ore.

SAN DIEGO

Land area: 4221 square miles.
Population: 289,348 (1940 census).
Location: Extreme southwest corner of State.
County seat: San Diego.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXI (July, 1925) : XXX : XXXV (Jan., 1939) : XXXVI-XXXVII.

San Diego ranked thirty-first in the total value of its mineral output for the year 1941 with sixteen different mineral substances on the commercial list. The value for 1941 was $1,411,934, as compared with the 1940 output worth $845,207.

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Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--	$10,535
Granite	--	15,391
Silver	50 fine ozs.	36
Stone, miscellaneous	--	1,128,786
Unapportioned *	--	257,192
Total value		$1,411,934

* Includes brick and hollow building tile, bromine, clay (pottery), feldspar, gems, magnesium salts, mineral water, salt, silica (quartz), tungsten, tubemill pebbles.

SAN FRANCISCO

Land area: 46½ square miles.
Population: 634,536 (1940 census).
County seat: San Francisco.
References: State Mineralogist Report XVII : XVIII : XX : XXV (April, 1929) : XXXV : XXXVII.

Surprising as it may appear at first glance, San Francisco County is listed among the mineral-producing sections of the State, actual production consisting mainly of crushed rock, sand, gravel, mineral water and gold and silver from beach sands.

In fifty-third place, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--	$655
Silver	3 fine ozs.	2
Unapportioned *	--	55,520
Total value		$56,187

* Includes mineral water and miscellaneous stone.

SAN JOAQUIN

Land area: 1448 square miles.
Population: 134,207 (1940 census).
Location: Central portion of State.
County seat: Stockton.
References: State Mineralogist Report XIV : XVII : XVIII : XXI (April, 1925).

San Joaquin County reported a mineral production for 1941 having a total value of $1,832,622, as compared with $1,146,912 for 1940.

In twenty-eighth place, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--------	$830,735
Natural gas	10,105,068 M. cu. ft.	659,137
Silver	2,011 fine ozs.	1,430
Stone, miscellaneous	--------	251,901
Other minerals	--------	89,219
Total value		$1,832,622

SAN LUIS OBISPO

Land area: 3334 square miles.
Population: 33,246 (1940 census).
Location: Bordered by Kern County on the east and the Pacific Ocean on the west.
County seat: San Luis Obispo.

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References: State Mineralogist Report XV: XVII: XVIII: XXI (Oct., 1925) : XXXI (Oct., 1935) : XXXV : XXXVII.

The total value of the mineral production of San Luis Obispo County in 1941, with eleven different mineral substances, was $572,025, as compared with $491,329 in 1940.

In forty-first place, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	----	$315
Quicksilver	1,854 fine ozs.	325,088
Stone, miscellaneous	----	169,442
Unapportioned *	----	77,180
Total value		$572,025

* Includes brick and hollow building tile, chromite, limestone, mineral water, petroleum, sandstone, volcanic ash.

SAN MATEO

Land area: 447 square miles.
Population: 111,782 (1940 census).
Location: Peninsula, adjoined by San Francisco on the north.
County seat: Redwood City.
References: State Mineralogist Report XVII: XVIII: XXV (April, 1929): XXIX: XXXV.

San Mateo County had a mineral output in 1941 of six different substances, having a total value of $3,425,263, as compared with $2,620,611, the value for 1940.

In eighteenth place, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Stone, miscellaneous	------	$120,541
Unapportioned *	------	3,305,072
Total value		$3,425,263

* Includes cement, limestone (shells), magnesium salts, petroleum.

SANTA BARBARA

Land area: 2740 square miles.
Population: 70,555 (1940 census).
Location: Southwestern portion of State, adjoining San Luis Obispo on the south.
County seat: Santa Barbara.
References: State Mineralogist Report XV: XVII: XVIII: XIX: XXI (Oct., 1925): XXXII: XXXV.

Santa Barbara County owes its position of ninth place in the State in regard to its mineral output to the presence of productive oil fields within its boundaries. The total value of its mineral production during the year 1941 was $10,018,726, as compared with $8,045,351, the output for 1940.

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With eleven different substances, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Natural gas	5,602,417 M. cu. ft.	$346,010
Petroleum	11,963,579 bbls.	7,705,929
Stone, miscellaneous	--------	199,519
Unapportioned *	--------	1,771,361
Total value		$10,018,726

* Includes bituminous rock, brick, clay (pottery), diatomite, marble (limestone for building), mineral water, quicksilver.

SANTA CLARA

Land area: 1328 square miles.
Population: 174,949 (1940 census).
Location: West-central portion of State.
County seat: San Jose.
References: State Mineralogist Report XVII : XVIII : XX : XXVI (Jan., 1930) : XXIX : XXXV.

Santa Clara County reported a mineral output for 1941 of $5,832,076, as compared with $3,229,052, the figure for 1940.

In twelfth place with ten mineral substances commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Limestone	280,125 tons	$319,558
Quicksilver	2,644 flasks	495,289
Stone, miscellaneous	------	292,843
Unapportioned *	------	4,724,390
Total value		$5,832,076

* Includes brick, cement, clay (pottery), gems, magnesite, petroleum.

SANTA CRUZ

Land area: 435 square miles.
Population: 45,057 (1940 census).
Location: Bordering Pacific Ocean, just south of San Mateo County.
County seat: Santa Cruz.
References: State Mineralogist Report XVII : XVIII : XXII (Jan., 1926) : XXIX.

The mineral output of Santa Cruz County, a portion of which is itemized below, amounted to a total of $3,206,828 for 1941, giving the county a standing of twenty-first among all others in the State in this regard. The 1940 figure was $2,779,306.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	-----	$315
Limestone	19,973 tons	96,978
Silver	3 fine ozs.	2
Stone, miscellaneous	-----	173,728
Unapportioned *	-----	2,989,805
Total value		$3,260,828

* Includes bituminous rock, cement, iron ore, lime.

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SHASTA

Land area: 3858 square miles.
Population: 28,800 (1940 census).
Location: North-central portion of State.
County seat: Redding.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XXII (April, 1926) : XXIX (Jan., April, 1933) : XXX : XXXIV : XXXV (April, 1939) : XXXVI.

Shasta County stood sixteenth in California among the mineral-producing counties in 1941, with an output valued at $3,758,848, as compared with the 1940 production worth $2,799,796.

With ten different mineral substances, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	116,412 lbs.	$13,737
Gold	------	1,719,760
Silver	25,772 fine ozs.	18,327
Stone, miscellaneous	------	1,678,020
Unapportioned *	------	329,004
Total value		$3,758,848

* Includes chromite, lead, platinum, pyrite, sandstone.

SIERRA

Land area: 923 square miles.
Population: 3025 (1940 census).
Location: Eastern border of State just north of Nevada County.
County seat: Downieville.
References: State Mineralogist Report XVI : XVII : XVIII : XX : XXV (April, 1929) : XXXI, XXXVIII (Jan., 1942).

Sierra County reported a mineral production of $964,347 in 1941, which was mainly gold, as compared with the 1940 output, worth $969,323.

In thirty-ninth place, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	1,872 lbs.	$221
Gold	-----	957,670
Lead	10,502 lbs.	579
Silver	4,524 fine ozs.	3,217
Unapportioned *	-----	2,640
Total value		$9,964,347

* Includes chromite and miscellaneous stone.

SISKIYOU

Land area: 6256 square miles.
Population: 28,598 (1940 census).
Location: Extreme north-central portion of State, next to Oregon boundary.
County seat: Yreka.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXI (Oct., 1925) : XXVIII (Jan., 1931) : XXIX : XXX : XXXI (July, 1935) : XXXIV : XXXV : XXXVII.

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Siskiyou, fifth county in California in regard to size, located in highly mineralized and mountainous country, ranks twenty-fourth in regard to mineral output with eleven mineral substances for 1941. The 1940 production was valued at $2,219,203.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	-----	$2,351,790
Pumice	7,132 tons	16,330
Silver	10,034 fine ozs.	7,135
Stone, miscellaneous	-----	141,437
Unapportioned *	-----	61,531
Total value		$2,578,213

* Includes chromite, copper, lead, mineral water, platinum, quicksilver.

SOLANO

Land area: 822 square miles.
Population: 49,118 (1940 census).
Location: Touching San Francisco Bay on the northeast.
County seat: Fairfield.
References: State Mineralogist Report XIV : XVII : XXIII (April, 1927) : XXXV.

Solano, while mostly valley land, produced mineral substances during 1941 to the total value of $1,141,335, ranking it thirty-sixth place among the counties of the State, compared with the 1940 output worth $709,435.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Natural gas	11,817,097 M. cu. ft.	$1,006,033
Stone, miscellaneous	--------	117,180
Unapportioned *	--------	18,128
Total value		$1,141,335

* Includes travertine, granite (volcanic tuff), quicksilver.

SONOMA

Land area: 1577 square miles.
Population: 69,052 (1940 census).
Location: South of Mendocino County, bordering on the Pacific Ocean.
County seat: Santa Rosa.
References: State Mineralogist Report XIV : XVII : XVIII : XXII (July, 1926) : XXXV.

Sonoma County ranked thirty-fourth among the counties of California during 1941 with a mineral output valued at $1,187,406 as compared with $432,760, the 1940 figure.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Mineral water	88,756 gals.	$12,722
Quicksilver	3,195 flasks	590,263
Stone, miscellaneous	-----	584,421
Total value		$1,187,406

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STANISLAUS

Land area: 1450 square miles.
Population: 74,866 (1940 census).
Location: Center of State, bounded on south by Merced County.
County seat: Modesto.
References: State Mineralogist Report XIV : XVII : XVIII : XXI (April, 1925) : XXXV.

Gold has usually been the chief mineral product of Stanislaus County, but it was exceeded in 1918-1919 by manganese, and in 1921-1923 and 1925-1930 by miscellaneous stone. This county for 1941 ranked thirty-third in the State in regard to minerals, with an output valued at $1,325,932, as compared with $1,558,205 in 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	----	$891,520
Silver	2,314 fine ozs.	1,016
Stone, miscellaneous	----	148,644
Unapportioned *	----	284,122
Total value		$1,325,932

SUTTER

Land area: 608 square miles.
Population: 18,680 (1940 census).
Location: Bounded by Butte County on the north and Sacramento on the south.
County seat: Yuba City.
References: State Mineralogist Report XV : XVII : XVIII.

Sutter is one of only two counties in the State which for a number of years reported no commercial output of some kind of mineral substance. In 1917 some crushed rock was taken out, from the Marysville Buttes, also in 1925-1928, and 1937-1938.

There has been some utilization of natural gas and clay. Coal is found here, but no deposits of it have been placed on a productive basis.

During 1941 there was a commercial output of pottery clay and natural gas, having a total value of $121,848, which ranked it forty-eighth as a mineral-producing county. The 1940 total was $94,054.

TEHAMA

Land area: 2893 miles.
Population: 14,316 (1940 census).
Location: North-central portion of the State, bounded on the north by Shasta.
County seat: Red Bluff.
XIV : XXIV (July, 1928) : XXXVII.

Tehama County stood fifty-eighth among the mineral-producing counties of the State for 1941, with an output valued at $2,295, compared with $51,880 in 1940. Commercial production in 1941 was crushed rock, sand and gravel.

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TRINITY

Land area: 3166 square miles.
Population: 3970 (1940 census).
Location: Northwestern portion of State.
County seat: Weaverville.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXII (Jan., 1926) : XXIX Jan., April, 1933) : XXX : XXXIV : XXXV : XXXVII (Jan., 1941).

Trinity County's output of minerals was valued at $1,556,365 for 1941, as compared with the 1940 figure of $1,772,327, mainly due to gold which gives the county a rank of thirtieth for the year.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	----	$1,500,870
Silver	4,792 fine ozs.	3,408
Stone, miscellaneous	----	20,727
Unapportioned *	----	31,365
Total value		$1,556,365

* Includes chromite, copper, lead, coal, manganese ore, platinum, quicksilver.

TULARE

Land area: 4856 square miles.
Population: 107,152 (1940 census).
Location: Bounded by Inyo on the east, Kern on the south, Fresno on the north.
County seat: Visalia.
References: State Mineralogist Report XV : XVII : XVIII : XX : XXXVI : XXXVII.

Tulare County stands forty-fifth on the list of mineral-producing counties for 1941, with nine different mineral substances, having a total value of $272,661, as compared with $220,065 for 1940.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--	$2,625
Silver	56 fine ozs.	40
Stone, miscellaneous	--	101,470
Unapportioned *	--	168,526
Total value		$272,661

* Includes barite, brick and hollow building tile, natural gas, petroleum, tungsten ore.

TUOLUMNE

Land area: 2190 square miles.
Population: 10,887 (1940 census).
Location: East-central portion of State—Mother Lode District.
County seat: Sonora.
References: State Mineralogist Report XIV : XVII : XVIII : XIX : XX : XXIV (Jan., 1928) : XXXIV : XXXV : XXXVII.

Tuolumne County ranks thirty-fifth among the counties of the State relative to its total value of mineral output for 1941, with thirteen

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different substances. This county ranks first as a producer of marble in the State. The mineral production of 1941 was valued at $1,142,905, as compared with $1,032,567.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Copper	9,177 lbs.	$1,083
Gold	----	804,895
Silver	5,775 fine ozs.	4,107
Stone, miscellaneous	----	132,318
Unapportioned *	----	200,502
Total value		$1,142,905

* Includes chromite, lead, dolomite, limestone, lime, magnesite, marble, slate.

VENTURA

Land area: 1878 square miles.
Population: 69,685 (1940 census).
Location: Southwestern portion of State, bordering on Pacific Ocean.
County seat: Ventura.
References: State Mineralogist Report XV: XVII: XVIII: XX: XXI : XXVIII (July-Oct., 1932) : XXXVII.

Ventura is fourth in the State in respect to the value of its mineral output for 1941. The 1941 mineral production was worth $21,430,061, as compared with the 1940 output valued at $20,647,881.

With nine different mineral substances, commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	--------	$665
Natural gas	38,608,979 M. cu. ft.	1,913,657
Petroleum	17,431,322 bbls.	19,221,193
Silver	5 fine ozs.	4
Stone, miscellaneous	--------	204,386
Unapportioned *	--------	92,668
Total value		$21,430,061

* Includes clay, oil well drilling mud, gypsum, sandstone.

YOLO

Land area: 1017 square miles.
Population: 27,243 (1940 census).
Location: Sacramento Valley, bounded by Sutter on the east and Colusa on the north.
County seat: Woodland.
References: State Mineralogist Report XIV : XVII : XVIII : XXXV.

Yolo County, in forty-fourth place, had a commercial production for 1941 as follows, compared with $109,820 the preceding year:

Substance	*Amount*	*Value*
Stone, miscellaneous		$130,085
Unapportioned *		151,218
Total value		$281,303

* Includes natural gas and quicksilver.

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YUBA

Land area: 639 square miles.
Population: 17,034 (1940 census).
Location: Lies west of Sierra and Nevada counties; south of Plumas.
County seat: Marysville.
References: State Mineralogist Report XV: XVII: XVIII: XX: XXVI (July, 1930): XXXI.

Yuba County ranked nineteenth among the counties of the State as a mineral producer and fortieth in respect to gold, which is obtained mainly by dredges. The 1940 output was valued at $4,035,614.

Commercial production for 1941 was as follows:

Substance	*Amount*	*Value*
Gold	----	$3,112,305
Silver	5,476 fine ozs.	3,894
Stone, miscellaneous	----	146,038
Other minerals	----	3,749
Total value		$3,265,986

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CHAPTER EIGHT

TOTAL RECORDED MINERAL PRODUCTION BY COUNTIES

Herein in the tabulations following we present the total mineral yield of each county of the State from the earliest available records to and including 1941. These tables were previously printed in the November, 1922, chapter of State Mineralogist's Report XVIII which included the data to the end of 1921; then in Bulletin 101, California Mineral Production for 1927, which included the data to the end of 1927; and in Bulletin 111, California Mineral Production and Directory of Mineral Producers for 1934, which included the data to the end of 1934.

In a number of cases it is known that there were productions of specific minerals in the years previous to the earliest years shown in these tabulations; but unfortunately, there are few detailed or accurate records showing county segregations prior to 1894 when compilation of the statistical records of the California State Mining Bureau began. For gold and silver, the published reports of the U. S. Geological Survey and the Director of the Mint give county segregations back to 1880; but, prior to that year, we have only the State total annually. In the case of quicksilver, there are authentic records for all of the important mines, from which we have compiled county tables for the early years.

The "unapportioned" column is necessitated by the fact that in many cases there is but a single operator or mine producing a given mineral in the county. As it is the policy of the Division of Mines not to reveal the individual's private business without his consent, we combine the values of such products.

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Year	Brick		Chromite		Pottery clay		Coal		Manganese	
	M	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value
1890	.....	.....	[1]397	$534	.....	.....	.....	.....	[1]	.....
1891	.....	.....	257	344	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	7,500	$37,500	.....	.....	.....	.....	.....	.....	468	$4,962
1895	12,000	60,000	.....	.....	.....	.....	.....	.....	600	5,400
1896	7,000	35,000	.....	.....	.....	.....	.....	.....	318	3,415
1897	6,500	35,750	.....	.....	.....	.....	21,900	$50,370	504	4,080
1898	7,000	35,000	.....	.....	.....	.....	70,500	176,250	440	2,102
1899	10,000	60,000	.....	.....	.....	.....	80,703	242,109	290	3,090
1900	5,000	40,000	.....	.....	.....	.....	91,731	332,066	130	1,300
1901	9,590	67,130	.....	.....	.....	.....	87,424	262,272	423	4,365
1902	10,000	60,000	.....	.....	.....	.....	67,850	203,550	870	7,140
1903	10,300	82,400	.....	.....	.....	.....	[2]	.....	.....	.....
1904	10,500	90,000	.....	.....	.....	.....	[2]	.....	60	900
1905	12,000	95,500	.....	.....	.....	.....	.....	.....	.....	.....
1906	21,345	413,750	.....	.....	10,000	$10,000	.....	.....	.....	.....
1907	28,770	474,350	.....	.....	12,610	14,299	.....	.....	.....	.....
1908	1,800	10,800	70	595	16,370	44,822	.....	.....	260	4,680
1909	14,800	140,000	[2]	.....	45,348	205,194	.....	.....	.....	.....
1910	20,919	195,889	69	552	9,541	63,925	.....	.....	.....	.....
1911	19,660	153,330	60	500	10,500	8,300	.....	.....	.....	.....
1912	12,800	133,100	.....	.....	.....	.....	.....	.....	20	360
1913	13,977	122,937	.....	.....	3,000	2,700	.....	.....	.....	.....
1914	22,668	159,205	.....	.....	5,000	1,000	.....	.....	.....	.....
1915	14,841	132,765	.....	.....	.....	.....	.....	.....	319	3,652
1916	23,551	315,941	612	7,344	4,060	2,750	.....	.....	562	9,005
1917	and tile	290,033	52	960	6,502	4,524	.....	.....	1,211	30,250
1918	.....	258,812	220	14,600	2,675	3,850	.....	.....	2,746	109,874
1919	.....	369,778	80	1,264	5,011	12,127	.....	.....	[2]	.....
1920	.....	664,918	.....	.....	3,001	3,762	.....	.....	[2]	.....
1921	.....	365,853	.....	.....	6,079	7,405	.....	.....	[2]	.....
1922	.....	[2]	.....	.....	[2]	.....	.....	.....	130	1,020
1923	.....	828,048	.....	.....	2,850	10,422	.....	.....	.....	.....
1924	.....	763,476	.....	.....	2,482	1,124	.....	.....	.....	.....
1925	.....	938,375	.....	.....	9,300	11,376	.....	.....	.....	.....
1926	.....	808,779	.....	.....	5,870	7,183	.....	.....	.....	.....
1927	.....	587,402	.....	.....	6,593	20,516	.....	.....	.....	.....
1928	.....	505,386	.....	.....	27,189	17,071	.....	.....	.....	.....
1929	.....	304,326	.....	.....	7,037	6,980	.....	.....	.....	.....
1930	.....	307,712	.....	.....	10,103	20,063	.....	.....	.....	.....
1931	.....	248,569	.....	.....	5,505	3,048	.....	.....	.....	.....
1932	.....	161,001	.....	.....	7,333	4,887	.....	.....	.....	.....
1933	.....	179,152	.....	.....	4,101	3,496	.....	.....	.....	.....
1934	.....	192,527	.....	.....	[2]	.....	.....	.....	.....	.....
1935	.....	218,988	.....	.....	3,782	3,282	.....	.....	.....	.....
1936	.....	146,730	.....	.....	6,612	6,443	.....	.....	.....	.....
1937	.....	[2]	.....	.....	5,506	9,712	.....	.....	.....	.....
1938	.....	[2]	.....	.....	5,244	5,532	.....	.....	.....	.....
1939	.....	[2]	.....	.....	10,434	17,073	.....	.....	.....	.....
1940	.....	[2]	.....	.....	6,860	10,349	.....	.....	.....	.....
1941	.....	[2]	.....	.....	12,372	19,607	.....	.....	.....	.....
Totals	.....	[3]$11,090,212	[1]1,817	$26,693	[3]278,870	$536,272	[4]420,108	$1,266,617	9,351	$195,595

[1] There was some production of chromite, manganese and salt in Alameda County in the years previous to those here shown but the separate county figures are not available.
[2] Includes crushed rock, macadam, ballast, rubble, rip-rap, sand, gravel.
[3] See under 'Unapportioned.'
[4] Magnesite precipitated from sea water.

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ALAMEDA COUNTY, 1890-1941

Pyrites		Salt		Miscellaneous stone,[2] value	Miscellaneous and unapportioned		
Tons	Value	Tons	Value		Amount	Value	Substance
.....	.....	[1]	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	
.....	.....	44,450	$125,125	$73,463	1,265 cu. ft.	$1,000	Building stone.
.....	.....	43,810	114,575	94,372	500 cu. ft.	300	Sandstone.
.....	.....	55,826	122,810	69,405	.....	.....	
.....	.....	61,353	139,830	73,300	.....	.....	
.....	.....	87,800	155,812	73,845	2,000 cu. ft.	750	Sandstone.
.....	.....	78,434	137,088	66,512	.....	.....	
.....	.....	64,718	158,674	107,551	30 tons	180	Magnesite.
4,500	$18,000	114,450	324,136	107,201	13,728 lbs.	2,162	Copper.
					190 tons	1,100	Magnesite.
14,323	53,301	80,000	160,000	182,295	1,500 lbs.	52	Lead.
					100 tons	500	Magnesite.
21,811	88,500	76,877	143,605	200,702	10,000 tons	15,000	Lime.
15,043	62,992	52,990	76,340	284,181	.....	.....	
15,503	63,958	49,100	54,200	449,029	.....	.....	
14,000	56,000	68,450	126,838	496,482	500 tons	1,750	Glass sand.
16,482	54,410	54,922	163,127	512,607	1,416 tons	14,400	Asphalt.
					11,943 tons	143,376	Asphalt.
13,404	70,782	78,462	108,694	465,653	3 tons	48	Soapstone.
					250 tons	625	Glass sand.
8,015	40,516	104,978	214,808	340,208	18,290 tons	241,475	Asphalt.
					.....	233,032	Unapportioned, 1909-09, inclusive.
10,938	53,170	131,868	285,217	408,591	18,290 tons	197,783	Asphalt.
					40 tons	260	Soapstone.
6,340	31,352	121,540	201,542	404,615	.....	.....	
7,267	29,068	126,211	212,150	420,283	.....	.....	
6,029	24,128	129,318	233,388	456,064	5,000 bbls.	5,000	Lime.
9,829	34,696	126,983	292,641	381,135	50 tons	250	Limestone.
					150 tons	1,500	Magnesite.
11,287	45,148	103,768	220,977	457,381	10 tons	20	Limestone.
					.....	1,740	Asbestos, chromite, pottery clay.
16,394	65,110	111,206	263,773	403,587	.....	26,657	Limestone, magnesium chloride, magnesite.
[3]	.....	148,846	315,970	413,845	.....	83,141	Lime, limestone, magnesite, magnesium salts, potash, pyrites.
9,113	45,565	130,132	410,345	311,320	.....	19,169	Asbestos, magnesium salts, potash, limestone.
8,978	42,902	157,751	552,178	309,572	.....	16,864	Magnesium salts, manganese, potash.
10,602	55,251	145,368	574,837	620,758	.....	28,354	Magnesium salts, manganese, mineral paint, potash.
13,449	70,669	108,925	370,296	513,641	.....	25,826	Magnesium salts, manganese, mineral paint, potash.
[3]	.....	139,556	434,076	760,422	.....	845,936	Brick, hollow building tile, magnesium, salt, pyrite.
[3]	.....	177,389	585,585	965,465	.....	97,515	Magnesium salts, pyrite.
[3]	.....	189,217	635,653	1,158,886	.....	75,506	Magnesium salts, potash, pyrite.
[3]	.....	180,712	497,692	1,414,398	.....	54,665	Magnesium salts, potash, pyrite.
[3]	.....	202,777	628,470	1,642,618	.....	71,414	Bromine, magnesium salts, pyrite.
[3]	.....	180,623	366,346	1,538,017	.....	65,506	Magnesium salts, potash, pyrite.
[3]	.....	224,000	611,888	1,267,155	.....	20,330	Pyrite, travertine.
					321,844 lbs.	48,016	Copper.
[3]	.....	264,666	1,623,397	1,592,232	104 fine oz.	55	Silver.
					.....	51,717	Mineral paint, pyrite.
[3]	.....	232,808	694,371	1,436,608	41 fine oz.	16	Silver.
					.....	70,567	Copper, pyrite.
[3]	.....	[3]	.....	1,008,124	.....	1,158,184	Bromine, limestone (shells).
					12,545 lbs.	790	Copper pyrite, salt.
[3]	.....	[3]	.....	813,165	49 fine oz.	14	Silver.
					.....	785,282	Limestone (shells), pyrite.
[3]	.....	[3]	.....	649,105	.....	1,097,908	Lime, limestone (shells), mineral paint, pyrite, salt.
[3]	.....	[3]	.....	1,090,371	.....	1,096,735	Clay (pottery), bromine, lime, limestone, pyrite, salt.
.....	.....	[3]	.....	681,555	27,104 lbs.	2,250	Copper.
						1,104,418	Bromine, lime, limestone, salt.
.....	.....	[3]	.....	1,222,909	.....	1,037,033	Bromine, lime, salt.
.....	.....	[3]	.....	1,361,781	.....	1,104,809	Brick, and tile, bromine, lime, salt.
.....	.....	[3]	.....	1,141,554	.....	1,348,514	Brick and tile, bromine, lime, magnesium salts, salt.
.....	.....	[3]	.....	1,325,914	.....	1,345,600	Brick and tile, bromine, lime, salt.
.....	.....	[3]	.....	1,559,545	.....	2,127,754	Brick and tile, bromine, lime, magnesite,[4] salt.
.....	.....	[3]	.....	2,372,864	.....	2,054,674	Brick and tile, bromine, lime, magnesite,[4] salt.
[5]233,697	$1,005,527	[6]4,450,284	$12,336,454	$33,700,286	.....	$16,853,522	

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MINERAL PRODUCTION OF ALPINE COUNTY, 1880-1941

Year	Gold, value	Silver, value	Copper		Miscellaneous and unapportioned	
			Pounds	Value	Value	Substance
1880	$17,133	$24,146				
1881	2,000	2,100				
1882	20,000	10,000	70,895	$13,115		
1883	10,000	5,000	[1]			
1884	5,000	4,000				
1885						
1896	400					
1897						
1901	23,568	2,860	8,377	1,319		
1902	10,359	3,770				
1903	2,701	146				
1904	4,827	145				
1905	575					
1909					$5,465	Unapportioned, 1900:1909.
1913	537	4				
1914						
1919					100	Crushed rock.
1920	[2]	[2]			680 160	Miscellaneous stone. Gold and silver.
1921					925	Miscellaneous stone.
1922					2,800	Miscellaneous stone.
1923						No commercial production.
1924		[2]	[2]		2,552	Lead and miscellaneous stone.
1925	[2]	[2]			520	Miscellaneous stone.
1926					450	Miscellaneous stone.
1927	146	60			5,100	Miscellaneous stone.
1928	23	363			174 2,800 5,169	Lead. Miscellaneous stone. Copper and granite.
1929			7,260	1,278	31,735	Miscellaneous stone.
1930					2,500	Miscellaneous stone.
1931	16	13				
1932	647	241			1,100 7	Miscellaneous stone. Copper, lead.
1933	1,651	1,091	323	21	43 9,918 58	Lead (1,169 lbs.). Unapportioned. Lead (1,564 lbs.).
1934	3,726	2,371	448	36	8,856	Unapportioned.
1935	280	162	[2]		8,999	Copper, lead, miscellaneous stone.
1936	3,430	4,111			2,000	Miscellaneous stone.
1937	13,790	6,923	827	100	413 1,565	Lead (6,991 lbs.). Other minerals.
1938	35	108			10,980	Miscellaneous stone.
1939	1,715	3,047	[2]		2,566	Copper, lead, miscellaneous stone.
1940	15,050	825			2,336	Quicksilver, miscellaneous stone.
1941	4,760	231			2,005	Miscellaneous stone.
Totals	[3]$143,360	$71,717	[3]88,130	$15,869	$111,976	

[1] "Small production of cement copper" reported in 1883, but record does not show exact figures.
[2] Under 'Unapportioned.'

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Year	Gold, value	Silver, value	Coal		Copper		Pottery clay		Lime	
			Tons	Value	Pounds	Value	Tons	Value	Barrels	Value
1880	$1,495,053	$1,953								
1881	1,450,000	1,500								
1882	1,500,000									
1883	1,590,000									
1884	2,000,000	2,000								
1885	2,145,591	3,700								
1886	1,874,062	6,136								
1887	1,979,956	2,069								
1888	1,750,000	3,500	24,404	$36,606						
1889	1,560,975	6,398	30,000	45,000						
1890	1,459,952	9,357								
1891	1,395,962	13,895	21,323	31,984						
1892	1,210,383	8,008								
1893	1,505,973	5,230								
1894	1,331,916	280	15,280	23,020			2,500	$3,000		
1895	1,391,929	1,089	21,323	31,985	16,500	$1,650	9,960	10,285		
1896	1,523,351	3,767	19,775	29,662	30,000	3,000	8,413	27,825		
1897	1,324,472	3,477	20,000	25,000			3,492	9,540		
1898	1,806,363	1,742	18,500	29,550	3,000	300	7,197	8,297		
1899	1,544,868	6,902	18,500	23,125			10,700	10,900		
1900	1,373,788	14,915	27,477	41,215	220,000	34,100	11,500	9,100		
1901	1,823,827	7,444	25,000	30,000	52,000	8,190	10,050	7,100		
1902	1,629,151	2,686	5,450	10,912	130,000	14,620	12,723	13,728		
1903	1,609,744	4,336			10,000	900	22,000	19,460		
1904	2,060,574	4,055			14,000	1,400	20,608	10,770	1,700	$1,700
1905	2,445,815	17,930			10,000	1,560	21,775	20,000	1,000	1,500
1906	2,260,373	14,579			8,648	1,669	26,789	28,119	1,000	1,200
1907	2,116,182	13,515			5,300	1,020	12,465	13,992		
1908	1,876,175	13,239			53,940	3,440	23,322	25,369	800	960
1909	2,298,785	16,701			288,472	36,641	33,563	32,724	1,200	1,440
1910	2,646,246	20,916			151,484	14,386	39,446	49,339	1,400	1,680
1911	2,832,395	28,899			227,848	28,481	43,352	37,359	1,200	1,500
1912	2,796,194	32,037			175,608	28,975	35,100	36,856	800	1,040
1913	2,901,898	18,097			19,023	2,949	39,678	38,653	1,000	1,200
1914	3,082,002	17,032	5,700	10,062	5,251	694	32,223	33,114	1,540	2,008
1915	3,894,125	20,409			4,185	732	40,156	38,879	1,000	1,200
1916	3,660,550	18,705	[1]		12,349	3,038	29,246	31,106	[1]	
1917	3,664,164	21,358	[1]		19,352	5,283	28,970	28,625		
1918	3,249,385	29,590	[1]		[1]		13,562	34,346		
1919	2,920,492	33,254	[1]				[1]			
1920	1,788,793	19,780	[1]				25,719	61,808		
1921	2,167,443	35,460					22,124	46,664		
1922	2,241,100	32,287					39,572	68,126		
1923	1,734,133	15,153					45,887	58,196		
1924	2,706,508	18,251	[1]		[1]		64,317	87,444		
1925	2,338,101	16,123	[1]		[1]		63,889	95,946		

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AMADOR COUNTY, 1880-1941

Marble		Brick		Miscellaneous and unapportioned		
Cu. ft.	Value	M	Value	Amount	Value	Substance
25,941	$35,826					
4,864	6,566					
4,389	5,415					
3,864	6,280					
2,850	3,594					
4,582	7,925					
4,103	5,891				$318,422	Unapportioned, 1900-1909.
2,945	4,630	600	$7,000			
6,300	8,016					
3,074	5,379					
4,785	6,558				750	Glass sand.
2,703	3,950					
Totals				1,000 tons	1,200	Limestone.
				10 tons	1,000	Asbestos.
170,400	$100,030	2,109	61,369	1,072 lbs.	40	Lead.
				1,000 tons	1,375	Limestone.
		1,429	28,572	2 tons	200	Asbestos.
				41 tons	332	Chromite.
Miscellaneous stone, value				1,000 tons	1,500	Limestone.
		2,000	30,000	10,100 tons	10,100	Quartz sand.
				11,200 cu. ft.	5,600	Sandstone.
				600 tons	6,000	Soapstone.
		2,000	20,000	90,000 cu. ft.	45,000	Sandstone.
		2,500	25,000	6,000 cu. ft.	3,000	Sandstone.
				700 tons	2,100	Soapstone.
				2,500 cu. ft.	2,500	Sandstone.
				350 tons	2,420	Soapstone.
670		2,000	30,000	1,960 tons	3,556	Quartz.
				877 tons	670	Glass sand.
					11,237	Other minerals.
				16,888 tons	9,855	Glass sand.
				44 lbs.	2	Lead.
		2,500	50,000	6,250 tons	2,400	Quartz.
				3,960 cu. ft.	1,500	Sandstone.
				610 tons	2,440	Soapstone.
				523 lbs.	25	Lead.
1,300		4,000	80,000	13,339 tons	16,142	Silica.
					10,950	Other minerals.
				300 tons	3,700	Chromite.
1,300		[1]		4,341 tons	12,802	Silica.
				495 tons	2,475	Soapstone.
		and tile			77,752	Brick, coal, lime, manganese, sandstone.
				65 tons	1,420	Chromite.
1,200			95,345	4,771 tons	20,766	Silica.
					13,033	Coal, lead, manganese, platinum, soapstone, zinc.
				88 tons	4,400	Chromite.
6,500			[1]	13,747 tons	61,724	Silica.
					66,695	Brick, coal, copper, manganese, mineral paint, platinum, soapstone.
					142,523	Clay and clay products.
			[1]	8,440 tons	67,366	Silica.
					9,953	Coal, manganese, platinum, sandstone, soapstone.
680			[1]	6,116 tons	36,432	Silica.
					102,707	Brick, coal, mineral paint, platinum, soapstone.
1,125			[1]	1,802 tons	20,646	Silica.
					97,126	Brick and platinum.
7,300				865 tons	5,030	Silica.
					125,220	Other minerals.[3]
28,515					119,877	Other minerals.[4]
3,050					123,612	Other minerals.[5]
31,100					11,003	Other minerals.[6]

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Year	Gold, value	Silver, value	Coal		Copper		Pottery clay		Lime	
			Tons	Value	Pounds	Value	Tons	Value	Barrels	Value
1926	$2,167,275	$13,422	[1]		[1]					
1927	1,922,714	11,319	[1]		[1]		118,636	$165,210	[1]	
1928	2,236,922	14,317	[1]		1,402	$202	96,209	116,000		
1929	1,601,861	9,392	[1]		[1]		60,487	88,846		
1930	1,840,191	7,100	[1]		[1]		74,023	103,160		
1931	1,549,073	4,783	[1]		[1]		32,275	57,751		
1932	1,307,760	3,865	[1]		1,454	92	20,284	26,373		
1933	1,945,261	6,471	[1]		13,922	891	18,341	26,016		
1934	2,274,275	10,544	[1]		7,254	580	28,620	50,833		
1935	2,614,235	17,634	[1]		9,641	800	37,876	66,654		
1936	3,402,350	18,096	[1]		31,542	2,902	52,813	91,228		
1937	3,712,835	18,041	[1]		18,579	2,248	66,397	107,212		
1938	3,724,840	14,569	[1]		5,152	505	42,679	73,422		
1939	4,167,030	15,411			3,933	409	37,780	64,147		
1940	4,122,160	16,413			20,643	2,333	34,282	67,164		
1941	3,499,300	16,551			11,941	1,409	70,645	130,997		
Totals	$138,046,841	$765,591	[2]252,732	$368,121	[1]1,583,523	$205,399	1,591,645	$2,231,683	[1]12,640	$15,428

[1] See under 'Unapportioned.'
[2] Includes crushed-rock, rubble, rip-rap, sand and gravel.
[3] Includes brick and platinum.
[4] Includes brick and soapstone.
[5] Includes brick, coal, copper and lead.
[6] Includes coal, copper, lead and marble.
[7] Includes brick, coal, copper and silica.

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AMADOR COUNTY, 1880-1941—Continued

Miscellaneous stone,[2] value	Brick		Miscellaneous and unapportioned		
	M	Value	Amount	Value	Substance
				$237,792	Brick and clay (pottery).[6]
$24,900	1		1,267 lbs.	101	Lead.
				8,010	Other minerals.[6]
			2,491 lbs.	157	Lead.
10,400	1			97,998	Other minerals.[7]
189,900		1		86,838	Brick, coal.
696,500		1		101,618	Brick, coal, copper, lead, marble.
388,129		1		86,107	Brick, coal, copper, lead, marble, platinum.
491,456		1		67,933	Brick, coal, copper, lead, marble.
			2,981 lbs.	89	Lead.
19,626		1		42,481	Brick, coal, marble.
				1,178	Lead.
		1	31,845 lbs.	48,781	Brick, coal, marble, miscellaneous stone.
				223	Lead.
12,115		1	6,102 lbs.	51,591	Brick, coal, gems (diamonds).
			3,271 lbs.	800	Lead.
17,066		1		48,779	Coal, brick.
			4,296 lbs.	197	Lead.
30,777				71,899	Brick, coal.
			7,004 lbs.	413	Lead.
1				77,177	Brick, coal, platinum, miscellaneous stone.
6,027				61,081	Brick, coal, lead, volcanic ash.
3,300				64,276	Brick, lead, platinum, volcanic ash.
			11,459 lbs.	573	Lead.
28,769				47,447	Brick, platinum, volcanic ash.
			13,396 lbs.	764	Lead.
6,088				69,303	Brick, slate, volcanic ash.
$1,917,793		[1]$427,286		$4,719,230	

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Year	Diamonds, value	Gold, value	Mineral water		Platinum	
			Gallons	Value	Ounces	Value
1880		$430,501				
1881		650,000				
1882		650,000				
1883		630,000				
1884		680,000				
1885		672,569				
1886		728,160				
1887		632,902				
1888		550,000				
1889		696,628				
1890		268,977				
1891		304,765				
1892		316,999				
1893		307,351				
1894		473,673				
1895		697,261				
1896		749,316	1,900	$775		
1897		667,025	2,160	900		
1898		514,508	2,685	900		
1899		486,846	2,480	1,240		
1900		485,589	15,000	1,515		
1901		864,978	10,400	1,455		
1902		916,782	14,000	1,500		
1903		1,571,507	13,000	1,550	14	$210
1904		1,932,552	12,600	1,512	66	1,000
1905		2,607,500	15,000	1,500	110	1,770
1906		3,016,747	19,500	1,950	26	475
1907		2,786,840	21,400	2,140		
1908		3,139,398	22,450	2,450		
1909		2,987,079	25,400	1,400		
1910		2,487,791				
1911	$150	2,323,396				
1912		2,346,229				
1913	175	2,269,849	1,000	250		
1914	100	1,700,000	1,200	300	119	381
1915	300	1,545,976	5,000	850	126	3,997
1916	357	1,257,231	3,150	1,125	76	3,472
1917	125	922,271	3,500	1,450	119	9,106
1918	125	645,975	3,900	1,680	114	7,723
1919	[2]	378,297	6,532	2,388	33	5,071
1920	400	467,900	6,400	5,200	fine oz. 42	4,714
1921	331	456,760	2,900	4,100	31	2,432
1922	225	491,201	2,835	2,485	fine oz. 30	3,826
1923		487,393	3,700	3,300	fine oz. 19	2,601
1924		484,530	6,000	4,500	fine oz. 20	2,829
1925		355,289	4,484	2,742	fine oz. 56	9,177
1926	175	287,853			fine oz. 10	954
1927		143,494				
1928		48,432	2,190	1,045		
1929	[3]550	71,917				

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BUTTE COUNTY, 1880-1941

Silver, value	Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
		Amount	Value	Substance
$1,247				
1,000				
3,700				
13				
6				
500				
518				
5,815				
229				
610				
5,504				
8,936				
5,390				
7,885		700 M	$4,200	Brick.
9,317		250 M	1,500	Brick.
		150 tons	3,000	Mineral paint.
5,009		300 M	1,800	Brick.
		900 tons	9,900	Mineral paint.
13,082		600 bbls.	600	Lime.
4,634		900 M	7,200	Brick.
		1,500 bbls.	1,500	Lime.
2,219		800 M	5,000	Brick.
		400 bbls.	750	Lime.
358		1,200 M	7,200	Brick.
		250 bbls.	250	Lime.
		190 tons	250	Limestone.
2,302		670 M	4,020	Brick.
7,134		400 M	3,200	Brick.
10,853		130 M	1,300	Brick.
8,967				
12,708	$7,916			
7,205	32,140	200 M	1,200	Brick.
			107,170	Unapportioned, 1900-1909.
6,429	34,932	645 lbs.	27	Lead.
5,102	78,208			
5,567	51,879			
5,163	258,503			
4,000	50,895	513 lbs.	20	Lead.
		90 lbs.	4	Lead.
3,433	67,143		540	Chromite.
		11 lbs.	2	Copper.
3,332	67,892	1,451 tons	13,940	Chromite.
			9,576	Other minerals.
		5,746 tons	104,085	Chromite.
2,991	89,870	378 lbs.	32	Lead.
			329	Copper, manganese, natural gas.
2,410	77,822	3,325 tons	134,535	Chromite.
			2,765	Manganese and natural gas.
1,911	92,765		1,105	Gems and natural gas.
2,253	[2]		161,095	Natural gas and miscellaneous stone.
1,759	203,900		548	Other minerals.
1,890	220,450		548	Other minerals.
1,756	340,250		6,648	Other minerals.[3]
2,118	138,000		225	Gems.
			9,548	Other minerals.[4]
4,354	156,738		17,878	Other minerals.[5]
2,997	147,604	273 M	4,316	Brick.
			18,046	Other minerals.[6]
371		40 lbs.	5	Copper.
		130 lbs.	8	Lead.
729	556,301	960 M	16,320	Brick.
			17,481	Other minerals.[7]
175	485,187		4,108	Limestone.
			22,382	Other minerals.[8]

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Year	Diamonds, value	Gold, value	Mineral water		Platinum	
			Gallons	Value	Ounces	Value
1930	$25	$126,858	[2]		[2]	
1931	250	172,383	[2]		[2]	
1932	50	265,589	[2]		[2]	
1933	150	296,159	[2]		[2]	
1934	150	544,000	[2]		[2]	
1935	60	952,632	[2]		[2]	
1936	60	1,202,460	[2]			
1937		1,558,305	[2]		[2]	
1938		1,882,370	[2]		[2]	
1939		2,079,385	[2]		[2]	
1940		2,543,835	[2]		[2]	
1941		2,981,090	[2]		[2]	
Totals	$3,758	$66,193,303	[3]341,866	$52,202	[2]1,011	$63,168

[1] Includes crushed rock, rubble, rip-rap, sand and gravel.
[2] See under 'Unapportioned.'
[3] Includes diamonds, natural gas, soapstone.
[4] Includes natural gas and soapstone.
[5] Includes brick, copper, gems (diamonds), lead, natural gas, soapstone.
[6] Includes clay (pottery), mineral water, natural gas, soapstone.
[7] Includes copper, gems (diamonds, sapphires), natural gas and soapstone.
[8] Diamonds and precious serpentine.
[9] Includes brick, mineral water, natural gas and soapstone.

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BUTTE COUNTY, 1850-1941—Continued

Silver, value	Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
		Amount	Value	Substance
$422	$400,239	353 lbs.	$46	Copper.
			12,076	Mineral water, natural gas, platinum, soapstone.
650	300,225	2,108 lbs.	192	Copper.
			9,037	Brick, mineral water, natural gas, platinum, soapstone.
717	191,487	715 lbs.	45	Copper.
			6,624	Lead, mineral water, natural gas, platinum, soapstone.
971	98,992	1,133 lbs.	73	Copper.
			8,316	Lead, mineral water, natural gas, platinum, soapstone.
3,172	80,971	1,805 lbs.	144	Copper.
			9,527	Brick, lead, mineral water, natural gas, soapstone.
4,257	49,653	2,001 lbs.	166	Copper.
			3,244	Brick, lead, mineral water, natural gas, soapstone.
9,796	174,944	5,008 lbs.	460	Copper.
			6,214	Lead, mineral water, natural gas, soapstone.
18,354	219,412	2,545 lbs.	308	Copper.
			2,613	Lead, mineral water, natural gas, platinum, salt, soapstone.
19,669	270,871		4,355	Copper, lead, limestone, mineral water, natural gas, platinum, salt, soapstone.
11,611	123,517	5,838 lbs.	607	Copper.
		11,799 lbs.	555	Lead.
			2,046	Natural gas, mineral water, platinum, salt, soapstone.
14,958	159,483	6,349 lbs.	717	Copper.
			3,823	Mineral water, natural gas, platinum, salt, soapstone.
21,166	166,947		2,669	Clay, copper, lead, mineral water, natural gas, platinum.
$289,253	$5,395,136		$780,013	

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Year	Gold, value	Silver, value	Copper		Mineral paint (ochre)		Clay	
			Pounds	Value	Tons	Value	Tons	Value
1880	$320,865	$643	[1]					
1881	800,000	1,200						
1882	670,000							
1883	500,000							
1884	485,000							
1885	527,538	2,558						
1886	639,457	4,926						
1887	640,417	1,477						
1888	580,000	1,500						
1889	592,243	1,071						
1890	618,821	2,499						
1891	738,883	4,860						
1892	794,531	24,441						
1893	1,669,192	122						
1894	2,119,365	5,183	654,866	$64,951	115	$2,530		
1895	1,717,916	77	175,895	16,925				
1896	1,546,398	500	87,557	8,990				
1897	1,439,861	1,745			150	2,400		
1898	1,019,023	3,462	18,400	2,052	100	225		
1899	1,265,564	9,813	165,484	27,586				
1900	1,649,126	80,762	980,934	150,585	400	3,800		
1901	2,024,685	44,687	1,701,389	268,000	125	500		
1902	2,072,939	46,234	2,087,501	251,062	259	778		
1903	1,904,125	68,280	2,246,675	297,263	200	1,000		
1904	1,789,184	65,611	2,592,124	414,399	70	385	100	$100
1905	1,836,816	78,859	3,666,810	572,022	379	1,900	40	300
1906	1,644,234	74,099	5,082,320	956,315			50	250
1907	1,097,974	54,420	3,941,883	609,203				
1908	1,378,511	62,727	4,804,446	555,704	50	250	25	250
1909	1,440,511	71,418	5,438,908	690,632			100	500
1910	1,147,705	82,866	7,345,321	778,369			30	250
1911	1,112,315	67,032	6,190,153	773,769			50	200
1912	962,145	70,748	6,125,415	1,010,693			4,281	4,431
1913	1,175,208	61,076	5,063,187	784,794	28	190	2,000	4,500
1914	1,336,875	60,244	4,468,998	594,377			280	280
1915	1,391,134	53,298	4,031,149	705,451	[2]			
1916	1,356,120	83,643	6,099,509	1,500,479				
1917	1,471,442	87,984	7,720,861	2,107,795	[2]			
1918	871,263	84,150	6,762,882	1,670,432				
1919	1,550,574	35,876	2,049,330	381,175				
1920	1,439,745	16,701	2,112,186	388,642				
1921	1,495,758	10,232	[2]					

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CALAVERAS COUNTY, 1880-1941

Mineral water		Limestone		Quartz crystals, value	Miscellaneous and unapportioned		
Gallons	Value	Tons	Value		Amount	Value	Substance
				$18,000	717 tons	$3,583	Pyrites.
				17,500			
					3,500 bbls.	5,500	Lime.
					25 tons	375	Chromite.
		3,087	$15,430	10,000	20 tons	300	Chromite.
		3,994	7,635		40 tons	280	Chromite.
					13.9 ozs.	250	Platinum.
		6,872	16,955	10,000			
		14,165	31,446	10,000			
		4,590	11,987			$50,075	Unapportioned, 1900-1909.
		6,283	16,976				
10,000	$5,000	3,943	11,733		220 lbs.	10	Lead.
7,528	3,764						
					2,500 lbs.	25	Graphite.
11,500	5,500	2,000	1,400		7,006 lbs.	308	Lead.
						9,900	Other minerals.
Totals		44,934	$119,062				
		Miscellaneous stone[2], value					
					650 tons	4,550	Chromite.
15,508	6,517				290 tons	2,618	Fuller's earth.
					30 lbs.	1	Lead.
					9 oz.	294	Platinum.
					163 lbs.	8	Lead.
15,343	5,752		$1,900			4,350	Asbestos, fuller's earth, mineral paint, platinum, silica.
					1,636 tons	12,570	Chromite.
					7,238 lbs.	499	Lead.
18,255	7,025		2,503		54 oz.	2,453	Platinum.
						300	Other minerals.
					1,613 tons	34,245	Chromite.
					6,395 lbs.	550	Lead.
16,985	7,009		2,700		20 ozs.	1,433	Platinum.
						3,922	Clay, fuller's earth, mineral paint, silica, zinc.
					3,830 tons	159,453	Chromite.
10,938	6,069		420		10 oz.	598	Platinum.
						2,067	Asbestos and lead.
					2,019 lbs.	107	Lead.
4,384	1,034		600		8 oz.	1,076	Platinum.
						8,116	Other minerals.
					20 fine oz.	2,002	Platinum.
5,120	512		2,400			30,048	Quartz crystals and lead.
					12 fine oz.	876	Platinum.
2,809	791		17,527			17	Copper and lead.

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Year	Gold, value	Silver, value	Copper		Mineral paint (ochre)		Clay	
			Pounds	Value	Tons	Value	Tons	Value
1922	$1,413,465	$11,648	[2]				[2]	
1923	1,205,784	7,316	1,598,776	$235,020			[2]	
1924	853,961	7,463	4,724,441	618,902			[2]	
1925	652,433	8,324	4,906,650	696,744			[2]	
1926	576,889	6,229	5,240,927	733,730			[2]	
1927	219,217	3,982	750,909	98,367			[2]	
1928	162,372	1,469	150,911	21,731			[2]	
1929	103,843	3,444	1,200,494	211,287			[2]	
1930	112,913	1,555	1,857,248	241,442				
1931	152,771	989	184	17				
1932	186,378	763						
1933	442,980	1,927	2,248	144			[2]	
1934	1,274,862	7,021	144	11			[2]	
1935	1,607,242	8,218	[2]				[2]	
1936	2,113,055	12,242	1,814	167			[2]	
1937	1,730,435	9,849	9,703	1,174			[2]	
1938	2,906,225	11,411	25,347	2,487			[2]	
1939	3,709,895	16,063	[2]				[2]	
1940	3,036,390	12,550	7,561	854			[2]	
1941	2,613,380	10,610	7,076	835			[2]	
Totals	$75,907,953	$1,570,295	[1]112,047,616	$18,444,577	[1]1,879	$13,958	[3]6,956	$11,061

[1] The Union Mine at Copperopolis was a producer as early as 1861, but there are no detailed, annual figures available for Calaveras County earlier than here shown.
[2] Under 'Unapportioned.'
[3] Includes crushed rock, sand, gravel.

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CALAVERAS COUNTY, 1880-1941—Continued

Mineral water		Miscellaneous stone,[2] value	Quartz crystals, value	Miscellaneous and unapportioned		
Gallons	Value			Amount	Value	Substance
1,914	$639	$35,590	[2]	22 fine oz.	$2,150	Platinum.
					39,391	Clay (pottery), copper, gems.
1,626	569	39,825	[2]		9,605	Clay (pottery), quartz crystals, lead, platinum.
1,400	139	83,250			8,704	Clay (pottery), gems (quartz crystals), lead, platinum, silica (quartz), soapstone.
[2]		78,506	[2]		14,611	Clay (pottery), gems (quartz crystals), lead, mineral water, platinum.
[2]		59,000	[2]		433,924	Cement, clay (pottery), gems (quartz crystals), lead, mineral water, soapstone.
[2]		[2]	[2]	222 tons	5,063	Chromite.
				4,606 lbs.	290	Lead.
					1,281,795	Cement, clay (pottery), gems (quartz crystals), soapstone, miscellaneous stone.
[2]		557,020	[2]	2,817 lbs.	163	Lead.
					2,059,787	Cement, quartz crystals, mineral water, platinum, soapstone.
[2]		360,982	[2]	8,227 lbs.	521	Lead.
					1,896,182	Cement, clay, quartz crystals, mineral water.
[2]		818,507	[2]	1,296 lbs.	65	Lead.
					909,474	Cement, quartz crystals, mineral water.
[2]		185,810	[2]	4,386 lbs.	162	Lead.
					753,805	Cement, quartz crystals, mineral water, platinum.
[2]		49,254	[2]	642 lbs.	19	Lead.
					498,785	Cement, pottery, clay, quartz crystals, mineral water, copper.
[2]		46,436		6,363 lbs.	253	Lead.
					447,259	'Unapportioned.'
[2]		48,339		612 lbs.	23	Lead.
					866,436	Cement, pottery clay, mineral water.
[2]		56,519			640,974	Cement, clay, copper, lead, mineral water.
[2]		7,643		4,755 lbs.	219	Lead.
					1,379,180	Cement, clay, mineral water, platinum, salt.
[2]		76,880		1,816 lbs.	107	Lead.
					1,460,805	Cement, clay, mineral water, slate.
[2]		38,991		1,583 lbs.	73	Lead.
					1,398,751	Cement, clay, mineral water, platinum.
[2]		9,955			1,657,940	Cement, clay, copper, lead, mineral water, platinum, slate.
[2]		14,411			1,169,630	Cement, chromite, clay, lead, mineral water, slate.
		29,410			1,739,804	Cement, chromite, clay, platinum, lead, tube-mill pebbles.
[1]123,310	$50,320	$2,624,378	[3]$65,500		$19,013,276	

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Year	Gold and silver, value	Quicksilver		Sandstone	
		Flasks	Value	Cubic feet	Value
1875		700	$58,905		
1876		407	17,908		
1877		466	17,382		
1878					
1879					
1880	[2]$4,908				
1881	3,500				
1882	2,575				
1883	1,000				
1884	1,530				
1885	45,000				
1886	11,617				
1887	7,461				
1888	6,000				
1889	13,626				
1890	2,810				
1891					
1892					
1893	300				
1894				20,000	$7,500
1895		1	40		
1896		58	2,054		
1897		43	1,510		
1898					
1899					
1900		275	12,359		
1901	1,800	235	10,575	88,981	80,082
1902	850	605	26,500	99,395	87,456
1903		510	21,708	146,828	312,500
1904		[2]400	16,526	100,000	290,000
1905		326	12,321	118,954	276,908
1906				88,821	101,892
1907	742	17	648	86,954	78,259
1908	584	21	900	73,284	43,971
1909	[4]	11	545	47,070	24,634
1910	[4]			112,947	56,505
1911	[2]3,118	5	230	101,029	50,027
1912				51,137	15,804
1913				34,927	15,550
1914				16,000	7,300
1915					
1916		285	26,648	[4]	
1917					
1918					
1919					
1920					
1921					
1922	[4]				
1923					
1924					
1925				[4]	
1926					
1927					
1928					
1929		[4]			
1930		[4]			
1931		[4]			
1932	372	[4]			
1933	57	[4]			
1934	480	[4]			
1935	944	[4]			
1936		[4]			
1937		[4]			
1938					
1939	35				400
1940	35	[4]		[4]	
1941		[4]		[4]	
Totals	$109,344	[3]4,365	$226,359	[1]1,186,327	$1,448,298

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] 1880 to 1890, U. S. Mint reports.
[3] Flasks of 76½ pounds previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.

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COLUSA COUNTY, 1875-1941

Mineral water		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Gallons	Value		Amount	Value	Substance

Year	Brick		Coal*		Lime	
	M	Value	Tons	Value	Barrels	Value
1894			35,000	$94,000		
1895			48,635	139,655		
1896	150	$4,500	44,892	118,709		
1897			39,267	105,180		
1898	5,000	25,000	47,000	113,340		
1899			53,013	131,613		
1900			51,248	145,000		
1901			35,000	100,000		
1902	800	11,600	13,960	31,160		
1903	2,600	16,000			5,300	$4,500
1904	9,385	67,495			12,187	10,359
1905	10,979	73,948			20,244	13,925
1906	23,267	169,022				
1907	48,573	403,564			1,413	1,413
1908	55,844	335,737				
1909	41,033	268,122			14,062	15,468
1910	30,284	199,079			17,338	14,750
1911	36,463	271,575			11,872	8,645
1912	32,621	283,718			14,870	12,640
1913	30,411	212,953			150,551	127,968
1914	16,064	129,543	67	268	5,666	4,724
1915	14,915	139,862	‡			
1916	16,672	148,730	‡			
1917	and tile	172,653	‡			
1918	and tile	148,831				
1919		‡				
1920	13,608	312,398				
1921		‡				
1922	and tile	307,749				
1923		‡				
1924	and tile	327,225				
1925		‡				
1926		‡				
1927		303,302				
1928	‡					
1929	‡					
1930						
1931	‡					
1932	‡					
1933	and tile	268,235				
1934	‡					

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CONTRA COSTA COUNTY, 1894-1941

Limestone		Mineral water		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Tons	Value	Gallons	Value		Amount	Value	Substance
							Quicksilver, 1875-1877 (inc.)[4]
		7,600	$3,700	$9,000	1,400 tons	$2,200	Pottery clay.
		5,000	1,200				
		9,300	3,100				
		10,000	3,500				
		12,000	1,900				
		12,000	1,900				
		31,200	8,736		31,700 lbs.	3,645	Copper.
18,000	$22,500	78,000	19,500				
		78,000	19,000	23,000			
34,800	43,500	[2]		76,120			
				75,025			
22,038	43,038			210,250	2,057 tons	21,870	Asphalt.
9,140	18,282	109,400	5,470	236,047	9,500 tons	123,500	Asphalt.
					6,000 tons	7,500	Pottery clay.
22,556	42,837	199,800	10,590	233,782	17,085 tons	222,105	Asphalt.
						683,392	Unapportioned, 1900-1909.
22,912	37,064	2,500	375	235,655			
68,708	46,208	206,500	10,325	257,503			
25,879	45,291	200,000	10,000	478,162			
26,259	34,976	192,292	4,989	660,405		921,349	Other minerals.
32,657	43,661	364,288	3,643	308,727		658,755	Other minerals.
11,989	14,565	350,000	4,000	397,330		757,748	Asbestos, cement, coal.
[2]		351,724	6,154	363,753		760,423	Cement, clay, coal, limestone.
		436,265	8,563	322,507		772,934	Cement and coal.
		30,376	3,038	324,884	100 tons	300	Pottery clay.
						847,198	Cement and copper.
		[2]		275,309		193,340	Clay and clay products.
						926,909	Cement and mineral water.
				432,654	1,743 tons	3,319	Pottery clay.
						1,333,682	Cement and mineral water.
		600,300	6,099	415,127		198,248	Clay and clay products.
						1,003,258	Other minerals.
				559,915	7,086 tons	12,910	Pottery clay.
						1,516,738	Cement, limestone, mineral water.
				629,216		281,743	Clay and clay products.
						1,761,985	Cement, limestone, mineral water.
				646,369		1,374,496	Clay (pottery), cement, limestone, mineral water.
				708,159		1,836,020	Clay (pottery), and clay products, cement, limestone, mineral water.
[2]		[2]		766,921		448,584	Clay and clay products.
						1,395,048	Cement, limestone and mineral water.
[2]		[2]		816,140		1,053,314	Cement, clay (pottery), limestone and mineral water.
		[2]		590,792		1,609,690	Brick and hollow tile, cement, clay, coal, mineral water.
		[2]		413,837	7,003 tons	6,327	Pottery clay.
						1,407,792	Brick and hollow tile, cement, mineral water, glass sand.
						102,036	Gold.
					199,186 fine ozs	76,687	Silver.
		[2]		398,613		1,065,950	Brick and hollow tile, cement, clay, mineral water, quicksilver, glass sand.
					5,368 tons	3,813	Pottery clay.
		[2]		315,825		973,204	Brick and hollow tile, cement, mineral water, glass sand.
		[2]		231,590		782,403	Brick and hollow tile, cement, clay, mineral water, quicksilver, glass sand.
		[2]		322,483		641,253	Cement, clay, mineral water, glass sand.
		[2]		408,412		1,326,587	Brick and hollow building tile, cement, pottery clay, mineral water, sandstone, silica (glass sand.)

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Year	Brick		Coal*		Lime	
	M	Value	Tons	Value	Barrels	Value
1935		368,028				
1936		423,887				
1937		497,543				
1938		483,961				
1939		695,508	[2]			
1940		[2]	[2]			
1941		[2]	[2]			
Totals		[3]$7,069,768	[3]368,082	$978,925	253,503	$214,392

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] See under 'Unapportioned.'
[3] Estimated.
[4] The Ryne Mine on Mt. Diablo was active in 1875-1877 (inc.) and produced as high as 85 flasks per month at one stage; but total amount not available.
* Coal mining began in the Mount Diablo section of Contra Costa County at least as early as 1861, but there are no segregated county figures available earlier than those here shown. For 1867-1882 (inc.), there are records which indicate for the Mount Diablo field a total of approximately 2,500,000 tons, valued at $14,300,000.

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CONTRA COSTA COUNTY, 1894-1941—Continued

Limestone		Mineral water		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Tons	Value	Gallons	Value		Amount	Value	Substance
.....	.....	[2]	.....	274,237	.....	719,351	Cement, clay, copper, lead mineral water, silica.
.....	.....	[2]	.....	427,731	14,245 tons	15,931	Pottery clay.
					.....	837,582	Cement, mineral water, quicksilver, glass sand.
.....	.....	[2]	.....	518,760	.....	851,006	Cement, clay, mineral water, quicksilver, silica.
.....	.....	[2]	.....	433,644	.....	1,198,680	Cement, clay, mineral water, quicksilver, silica.
.....	.....	[2]	.....	320,320	.....	1,190,303	Cement, clay, coal, gems, mineral water, quicksilver, silica.
.....	.....	[2]	.....	278,477	.....	1,960,631	Brick and tile, cement, clay, coal, diatomite, mineral water, quicksilver, glass sand.
.....	.....	[2]	.....	769,537	.....	2,493,554	Brick and tile, cement, mineral water, natural gas, quicksilver, glass sand.
[2]294,938	$391,922	[3]3,286,545	$135,782	$15,202,278	.....	$36,385,293	

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MINERAL PRODUCTION OF DEL NORTE COUNTY, 1880-1941

Year	Gold, value	Silver, value	Platinum		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
			Ounces	Value		Amount	Value	Substance
1880	$215,403	$300						[2]
1881	60,000							
1882	80,000							
1883	135,000							
1884	100,000							
1885	39,390	9						
1886	76,189							
1887								
1888								
1889	21,800							
1890	900							
1891	5,586							
1892	4,102							
1893	10,352							
1894	8,000							
1895	8,250							
1896	24,150							
1897	16,710							
1898	9,057							
1899	4,450							
1900	3,483							
1901	10,612							
1902	5,450							
1903	7,183							
1904	7,399		1.5	$18				
1905	10,590		1.5	22				
1906	5,945	33						
1907	878	3						
1908	3,488	19				74,787 lbs.	$9,984	Copper.
1909	1,610	52				24,449 lbs.	13,085	Copper.
							20,000	Unapportioned, 1900-09.
1910	2,388	62				26,670 lbs.	3,395	Copper.
1911	1,743	7						
1912	3,940	10						
1913	2,498	16						
1914	2,035	9	14	643	$3,250			
1915	1,018	6			3,500			
1916	405	2	2	73	1,685		267	Chromite and copper.
1917	1,373	8	10	853	2,700	3,275 tons	97,255	Chromite.
							2,151	Other minerals.
1918	565	4	1	97	8,000	7,143 tons	360,485	Chromite.
							2,584	Other minerals.
1919	867	6			6,300		67	Other minerals.
1920					9,000		2,781	Chromite and copper.
1921	[2]	[2]	[2]		5,580		449	Gold, platinum, silver.
1922	[2]	[2]	[2]		5,500		761	Gold, platinum, silver.
1923	1,778	9	[2]		31,368		872	Copper and platinum.
1924	325		[2]		721,720		220	Unapportioned.
1925	681	1			269,650		250	Other minerals.
1926	1,078	4	10	1,132	68,250			
1927	384	1			53,350		240	Other minerals.
1928	277	1			381,080			
1929		3			83,380	5,002 lbs.	880	Copper.
1930	279	1			275,227		523	'Unapportioned.'
1931	1,372	1			36,702			
1932	2,195	2			23,416		188	'Unapportioned.'
1933	1,933	3	[2]		[2]		1,126	Platinum, miscellaneous stone.
1934	6,078	13	[2]		73,883		24	'Unapportioned.'
1935	4,798	3			41,788		4,529	Gold, silver, platinum.
1936	[2]	[2]	[2]		12,247		28,014	Chromite, miscellaneous stone.
1937	2,625	8			[2]			
1938	700	1			15,296			
1939	4,410	15	[2]		7,250		1,426	Chromite, platinum.
1940	1,750	3			[2]		22,936	Chromite, miscellaneous stone.
1941	1,365	2	[2]		18,250		92,636	Chromite, platinum.
Totals	[3]$924,927	[3]$617	[3]40	$2,838	$2,058,372		$664,128	

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] Gold, copper and chromite were produced in Del Norte County earlier than the years shown, but the amounts are not separable by counties. Some quicksilver was obtained in the 50's but there is no record of amount.
[3] See under 'Unapportioned.'

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Year	Gold, value	Silver, value	Copper		Lime	
			Pounds	Value	Tons	Value
1880	$389,383	$208				
1881	550,000	900				
1882	600,000					
1883	530,000					
1884	575,000	16,000				
1885	35,000					
1886	619,992	1,822				
1887	706,871	365				
1888	650,000	500				
1889	427,638	408				
1890	204,583	275				
1891	173,279	359				
1892	198,321					
1893	294,610	1,220				
1894	366,707	356			1,600	$8,000
1895	700,101	448			4,560	28,500
1896	812,289	534			706	4,158
1897	674,626	886			2,160	6,750
1898	501,966	4,174			538	3,360
1899	404,497	8,414			1,270	7,935
1900	368,541	25,129	3,125	$500	1,200	6,000
1901	292,036	5,977			1,760	11,000
1902	335,031	52	2,128	319	3,936	16,176
1903	277,304				896	7,000
1904	474,994				2,058	7,075
1905	384,735	2,525	160,000	24,960	1,482	6,946
1906	431,746	2,690			3,075	21,138
1907	319,177	2,301		122	1,782	16,198
1908	342,033	5,504	603	83	2,547	20,192
1909	238,284	1,299			2,212	14,591
1910	171,304	967			1,808	9,944
1911	133,967	1,010			2,414	12,309
1912	105,565	843			2,244	11,218
1913	62,688	250	696	107		
1914	133,886	654			2,240	12,082
1915	401,288	1,353	417	73	2,546	12,872
1916	361,821	1,496				
1917	24,758	85	18,982	5,182		
1918	28,352	722	22,259	5,498		
1919	30,121	279				
1920	13,379	155				
1921	34,109	301				
1922	47,340	376				
1923	30,264	185				
1924	28,207	153				
1925	40,212	238				
1926	91,789	472				
1927	82,254	383				
1928	122,017	697	1,074	155		
1929	57,680	236				
1930	78,019	250				
1931	85,322	283				
1932	182,043	438	850	54		
1933	540,989	1,458	2,755	176		
1934	1,380,710	6,035	4,312	345	8,250	85,938

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EL DORADO COUNTY, 1880-1941

Limestone		Slate		Miscellaneous stone[2], value	Miscellaneous and unapportioned		
Tons	Value	Squares	Value		Amount	Value	Substance
[1]							[4]
		1,800	$11,700				
		1,350	9,450				
		500	2,500				
500	$250	400	2,800				
		400	2,800				
		600	4,500				
		3,500	26,250			$251,820	Unapportioned, 1900-09.
		5,100	38,250				
		4,000	30,000				
		6,000	50,000		10 tons	162	Asbestos.
1,050	5,775	4,000	40,000		112 tons	2,625	Asbestos.
		10,000	100,000		20 tons	1,000	Asbestos.
5,394	15,318	7,000	60,000				
		6,000	50,000	$1,600	200 M	8,000	Paving blocks.
		6,961	45,660	530	3,763 tons	5,645	Sand (glass).
		1,000	8,000	2,616	1,200 tons	1,800	Sand (glass).
1,000	1,000			5,465	3,701 lbs.	167	Lead.
				4,375			
				4,678			
				2,600	90 lbs.	4	Lead.
		[3]		7,500		5,250	Slate and soapstone.
					5,260 tons	72,560	Chromite.
[3]				12,000		19,613	Lime and limestone.
					886 tons	1,717	Silica.
						1,480	Copper and soapstone.
					8,319 tons	167,950	Chromite.
[3]				6,200		104,851	Lime and limestone.
					2,684 tons	4,506	Silica.
						70	Other minerals.
96,673	218,120			20,500	11,936 tons	674,856	Chromite.
						11,236	Pyrites, silica, soapstone.
					378 tons	6,510	Chromite.
41,025	112,423			1,700	1,600 tons	13,950	Soapstone and talc.
						1,169	Other minerals.
	139,873			5,500	2,640 tons	18,200	Soapstone.
						9,325	Other minerals.
15,296	66,143			2,750	1,652 tons	9,453	Talc.
42,200	113,700			4,250		18,850	Slate and soapstone.
95,274	163,987			5,900	2,670 tons	15,729	Soapstone.
112,156	322,955			2,538	1,498 tons	8,988	Talc.
						32,691	Copper and lime.
228,293	297,127			10,305		4,946	Lime and silica.
59,386	186,702	[3]		17,510		5,613	Lime, silica, slate.
96,733	146,506	[3]		500		15,792	Copper, gems, silica, soapstone, slate.
57,012	158,252	[3]		17,455	365 tons	8,855	Soapstone.
						21,995	Lead, silica, slate.
71,033	199,989	[3]		25,665		83,930	Copper, lime, silica, slate, soapstone.
88,869	205,225	[3]		96,599		113,105	Lead, lime, silica, slate, soapstone.
79,798	207,594	[3]		37,494		107,242	Chromite, copper, lead, lime, silica, slate, soapstone.
105,094	207,241	[3]		[3]		97,126	Lead, lime, platinum, silica, slate, soapstone, miscellaneous stone, tungsten ore.
120,026	208,049	[3]		7,551		90,586	Lead, lime, slate, soapstone.
112,237	152,422	[3]		7,400		18,405	Lead, silica (quartz), slate, soapstone.

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Year	Gold, value	Silver, value	Copper		Lime	
			Pounds	Value	Barrels	Value
1935	$1,803,368	$5,943	12,391	$1,028	[3]	
1936	1,988,735	9,063	21,661	1,993	[3]	
1937	1,719,795	8,238	65,353	7,908	[3]	[3]
1938	1,484,805	5,717	40,535	3,972	[3]	
1939	2,520,105	8,627	10,910	1,135	[3]	
1940	1,341,585	3,799	1,630	184	[3]	
1941	1,577,630	4,216	957	113	[3]	
Totals	$29,582,811	$147,386	370,635	$53,907	[3]51,284	$329,3

[1] In addition to the segregated figures herein given, a large tonnage of limestone is annually shipped fro
Eldorado County for use in cement manufacture, and whose value is included in the state total for cement.
[2] Includes crushed rock, rubble, rip-rap, sand, gravel.
[3] See under 'Unapportioned.'
[4] There was a small production of quicksilver in the 60's, but no record of amounts.

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EL DORADO COUNTY, 1880-1941—Continued

Limestone		Slate		Miscellaneous stone[2], value	Miscellaneous and unapportioned		
Tons	Value	Squares	Value		Amount	Value	Substance
151,814	$298,867	[3]	.....	$46,886	.....	$232,907	Lead, lime, mineral water, silica (quartz), slate, soapstone.
159,134	348,055	[3]	.....	77,778	.....	371,356	Chromite, lead, lime, mineral water, platinum, slate, soapstone.
227,721	448,130	[3]	.....	20,784	[3]	402,762	Chromite, lime, mineral water, platinum, slate, soapstone.
135,142	304,420	[3]	.....	64,202	.....	343,983	Chromite, lead, lime, mineral water, soapstone, slate.
146,625	320,212	[3]	.....	16,422	4,766 lbs.	224	Lead.
					.....	410,954	Chromite, lime, platnum, mineral water, slate, soapstone.
261,713	308,708	[3]	.....	12,947	.....	427,272	Chromite, lead, lime, slate, soapstone.
75,631	152,390	[3]	.....	9,241	.....	580,574	Chromite, lead, lime, slate, soapstone.
2,625,918	$5,339,473	[3]58,611	$481,910	$549,441	.....	$4,797,804	

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Year	Gold, value	Silver, value	Copper		Petroleum		Brick		Miscellaneous stone[1], Value
			Pounds	Value	Barrels	Value	M	Value	
1880	$143,433								
1881	90,000								
1882	80,000								
1883	100,000								
1884	80,000								
1885	74,500	$2,456							
1886	151,186	2,701							
1887	205,242	274							
1888	200,000	2,800							
1889	185,988	4,629							
1890	49,951	1,816							
1891	82,607	10,396							
1892	[2]112,981	[2]6							
1893	7,118								
1894	8,202								
1895	47,249								
1896	28,235	100			14,119	$56,750			
1897	43,144				70,140	70,840			
1898	27,557				154,000	154,000	2,500	$18,000	
1899	18,142				439,372	439,372	5,500	38,500	
1900	22,346	479			547,960	547,960	4,250	35,062	
1901	21,462		1,159,672	$182,648	525,433	236,444	5,000	35,000	
1902	54,427		3,000,000	345,000	571,233	199,931	6,000	45,000	
1903	21,538	111			2,214,160	730,673	8,000	68,000	$11,038
1904	7,809	4	2,500	319	5,114,958	1,520,847	4,800	32,400	
1905	40,037	9,187	1,440,000	224,640	8,890,000	2,400,300	9,000	60,000	
1906	8,493	83	440,000	88,000	8,402,000	1,974,470	8,000	64,000	
1907	2,401	26	250,000	50,000	9,050,300	3,620,120	9,230	57,350	10,500
1908	1,054	11			10,725,389	5,898,964	13,220	106,960	16,900
1909	17,539	8,503	876,837	111,341	15,406,619	9,243,971	7,950	49,375	28,400
1910	3,373	2,980	486,725	61,999	18,651,470	9,277,241	9,533	76,267	58,089
1911	17,441	81			19,499,611	9,344,085	4,500	28,500	318,911
1912	6,094	23			19,510,932	8,487,255	5,000	40,000	307,158
1913	2,846	15			18,956,965	7,927,736	5,500	44,000	416,437
1914	10,231	31			15,952,190	7,210,389	4,500	36,000	237,963
1915	4,151	246	65,903	11,533	14,021,025	7,641,459	4,750	33,250	193,705
1916	693	69	29,173	7,177	14,594,246	7,530,631	[3]		95,830
1917	5,745	289	40,662	11,101	16,259,797	13,414,333	[3]		136,719
1918	4,795	37			16,068,919	19,138,083	and tile	89,156	244,647
1919	5,540	67			16,091,037	20,805,711	[3]		241,213
1920	7,793	227			15,375,454	22,801,798	12,517	196,756	535,587
1921	13,085	75			12,161,565	18,643,679	[3]		486,057
1922	10,442	87			9,265,529	9,895,582		220,737	600,348
1923	18,519	128			5,061,542	3,593,695	[3]		863,067
1924	32,978	190			10,156,405	11,801,743		95,104	451,540
1925	25,056	151			7,773,665	8,503,390	[3]		457,307
1926	8,595	52			7,340,102	5,982,183		87,493	388,555
1927	17,406	77			7,202,284	5,977,176		89,145	1,118,761

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FRESNO COUNTY, 1880-1941

Mineral water		Magnesite		Natural gas		Miscellaneous and unapportioned		
Gallons	Value	Tons	Value	M cu. ft.	Value	Amount	Value	Substance
						216 tons	$700	Coal.
						500 tons	4,000	Gypsum.
						600 tons	4,800	Gympsum.
1,200	$400					50 tons	400	Gypsum.
1,886	350							
2,000	900					100 tons	600	Gypsum.
2,000	900					16 tons	320	Asphalt.
5,000	4,000						268,534	Unapportioned, 1900-1909.
5,142	5,142							
5,000	4,500							
7,200	7,200					839 tons	10,068	Asphalt.
4,800	2,400	38	$120			579 tons	6,948	Asphalt.
						500 tons	5,500	Asphalt.
						9,000 tons	26,000	Clay.
		850	8,500			400 tons	4,400	Asphalt.
		1,400	22,400			200 tons	2,600	Asphalt.
							750	Gems.
		220	2,195				250	Gems.
						50 tons	950	Chromite.
		2,000	20,000	200,000	$21,380		700	Gems.
						336 flasks	14,125	Quicksilver.
		1,135	9,080	236,100	23,610	375 flasks	15,086	Quicksilver.
				250,000	15,000	148 flasks	7,259	Quicksilver.
				2,894,834	253,906	1,300 tons	13,600	Chromite.
							450	Other minerals.
						9,060 tons	151,824	Chromite.
		5,829	49,082	2,346,917	163,941	11,000 cu.ft.	25,000	Granite.
						668 lbs.	46	Lead.
							36,900	Brick, fuller's earth, mineral water.
						6,289 tons	109,292	Chromite.
		6,077	57,422	4,097,626	347,501		31,500	Granite.
							44,150	Asbestos, brick, mineral water, quicksilver.
						2,314 tons	86,181	Chromite.
		1,795	16,151	5,009,327	267,123		26,800	Granite.
						35 flasks	3,652	Quicksilver.
							34,500	Granite.
		600	5,950	5,191,287	411,356		140,128	Chromite and brick.
		906	8,725	3,721,313	201,865		49,600	Granite.
							17,000	Other minerals.
		945	9,540	1,886,081	190,181		125,276	Clay and clay products.
							28,610	Granite.
							2,000	Other minerals.
							28,600	Granite.
				1,694,090	89,277		8,360	Other minerals.
							217,880	Clay and clay products.
				1,599,354	122,702		64,920	Granite.
							2,400	Other minerals.
				1,430,708	102,286		60,447	Granite.
							3,600	Other minerals.
				1,515,889	116,711		63,580	Granite.
							98,801	Clay and clay products, mineral water.
				1,920,489	153,726	17,880 cu.ft.	78,624	Granite.
							800	Other minerals.
				1,682,652	148,227	17,186 cu.ft.	74,424	Granite.
							2,000	Other minerals.

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MINERAL PRODUCTION OF

Year	Gold, value	Silver, value	Copper		Petroleum		Brick		Miscellaneous stone[1], value
			Pounds	Value	Barrels	Value	M	Value	
1928	$15,455	$75	[3]		4,611,440	$3,524,985	[3]		$362,260
1929	13,575	79	[3]		3,498,107	1,781,586	[3]		301,542
1930	5,916	21	[3]		3,362,902	1,910,128	[3]		[3]
1931	6,512	15	[3]		2,991,976	1,649,476	[3]		202,748
1932	12,445	32	[3]		3,665,641	2,038,096	[3]		116,494
1933	19,459	48	[3]		4,516,246	2,586,906	[3]		59,363
1934	24,066	87	[3]		6,607,661	4,295,980	[3]		[3]
1935	20,645	119	[3]		27,679,545	26,047,611	[3]		161,760
1936	15,225	74	[3]		30,035,864	36,317,189	[3]		175,137
1937	8,540	43	[3]		29,091,322	36,521,804	[3]		187,379
1938	10,955	35	[3]		20,784,106	26,201,849			224,869
1939	16,100	58	[3]		15,411,056	18,077,169			293,022
1940	34,400	164	[3]		17,377,685	18,562,902			197,455
1941	214,060	694	[3]		20,302,492	19,560,723	[3]		264,008
Totals	$2,544,777	$50,014	[2] 7,791,472	$1,093,758	496,004,464	$424,147,215		$1,645,965	[4] $9,764,789

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] To end of 1892, includes Madera County, which was created March 11, 1893.
[3] See under 'Unapportioned.'
[4] Brick and hollow building tile, copper, gems, mineral water, pumice, quicksilver.
[5] Brick and hollow building tile, copper, diatomite, gems, mineral water, volcanic ash.
[6] Brick and hollow building tile, diatomite, granite, gypsum, mineral water, volcanic ash, miscellaneous stone.
[7] Brick and hollow building tile, chromite, diatomite, gems, granite, gypsum, marl, mineral water, quicksilver, volcanic ash.
[8] Brick and hollow building tile, diatomite, gems, granite, gypsum, marl, mineral water, quicksilver, volcanic ash.
[9] Brick and hollow building tile, pottery clay, diatomite, granite, gypsum, marl.
[10] Brick and hollow building tile, clay (pottery), copper, diatomite, gems, granite, gypsum, limestone (marl), miscellaneous stone.
[11] Brick and hollow tile, chromite, copper, diatomite, granite, limestone, quicksilver.
[12] Brick and hollow tile, chromite, clay (oil well drilling mud), copper, feldspar, gems, granite, gypsum, limestone, quartz.
[13] Brick and hollow tile, chromite, clay (oil well drilling mud), copper, feldspar, granite, gypsum, limestone, quicksilver.
[14] Brick and hollow tile, chromite, pottery clay, feldspar, gems, granite, gypsum, limestone, mineral water, quicksilver, tungsten ore.
[15] Brick, pottery clay, feldspar, gems, mineral water, gypsum, granite, limestone, quicksilver, tungsten ore.
[16] Brick and hollow tile, chromite, pottery clay, coal, feldspar, granite, gypsum, quicksilver, tungsten ore.
[17] Brick and hollow tile, chromite, copper, gems, granite, gypsum, platinum, tungsten ore.

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FRESNO COUNTY, 1880-1941—Continued

Mineral water		Magnesite		Natural gas		Miscellaneous and unapportioned		
Gallons	Value	Tons	Value	M cu. ft.	Value	Amount	Value	Substance
[1]				1,422,366	$151,061	1,376 cu.ft.	$80,050	Granite.
							93,400	Other minerals.[4]
[1]				1,006,110	190,598		28,000	Granite.
						10 flasks	1,190	Quicksilver.
							13,600	Other minerals.[5]
[1]				393,337	26,108	174 flasks	13,418	Quicksilver.
							368,882	Other minerals.[6]
[1]				5,591,304	253,937		125,645	Other minerals;[7]
[1]				25,476,752	1,520,285		57,039	Other minerals.[8]
[1]				18,807,454	1,191,237	34 flasks	1,541	Quicksilver.
							42,549	Other minerals.[9]
[1]				19,680,080	1,235,707	30 flasks	1,208	Quicksilver.
							215,759	Other minerals.[10]
				63,579,904	3,687,049	6,633 tons	19,899	Gypsum.
							79,603	Other minerals.[11]
				60,983,263	3,582,394	71 flasks	5,362	Quicksilver.
							149,730	Other minerals.[12]
				67,274,419	4,308,280		152,745	Other minerals.[13]
[1]				58,337,848	3,626,724		95,086	Other minerals.[14]
				54,485,085	2,799,981		88,907	Other minerals.[15]
				61,400,088	3,139,902		169,196	Other minerals.[16]
				68,694,072	3,468,495	183 flasks	31,909	Quicksilver.
							211,142	Other minerals.[17]
34,288	$25,792	21,795	$209,165	542,808,749	$31,801,550		$4,050,795	

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MINERAL PRODUCTION OF GLENN COUNTY, 1893-1941

Year	Amount	Value	Substance
1893 and previous	3,319 long tons	$49,700	Chromite.
1909	140,000 tons	49,000	Macadam.
1910	378,000 tons	34,020	Rubble.
1911	421,775 tons	51,430	Sand and gravel.
1912	543,675 tons	32,950	Sand and gravel.
1913	416,640 tons	27,776	Sand and gravel.
1914		30,553	Miscellaneous stone.
1915	746 lbs.	131	Copper.
		46,526	Miscellaneous stone.
		10	Other minerals.
1916		41,180	Miscellaneous stone.
		39,982	Other minerals.
1917	879 tons	21,474	Chromite.
	369 tons	9,721	Manganese.
		33,260	Miscellaneous stone.
		817	Other minerals.
1918	1,129 tons	57,263	Chromite.
		32,436	Miscellaneous stone.
1919		58,137	Miscellaneous stone.
		1,500	Other minerals.
1920		134,707	Miscellaneous stone.
1921		103,197	Miscellaneous stone.
1922		91,250	Miscellaneous stone.
1923		113,282	Miscellaneous stone.
1924		41,550	Miscellaneous stone.
1925		92,288	Miscellaneous stone.
1926		58,391	Miscellaneous stone.
1927		63,869	Miscellaneous stone.
1928		101,889	Miscellaneous stone.
1929		81,516	Miscellaneous stone.
1930		61,179	Miscellaneous stone.
1931		47,462	Miscellaneous stone.
1932		8,714	Miscellaneous stone.
1933		11,690	Miscellaneous stone.
1934		30,608	Miscellaneous stone.
1935		2	Gold.
		41,285	Miscellaneous stone.
1936		134,466	Miscellaneous stone.
1937		136,368	Miscellaneous stone.
1938		60,138	Miscellaneous stone.
1939		54,519	Miscellaneous stone.
1940		16,891	Miscellaneous stone.
1941		33,204	Miscellaneous stone.
Total		$2,136,403	

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Year	Gold, value	Silver, value	Mineral water		Brick	
			Gallons	Value	M	Value
1880	$153,940	$80				
1881	75,000	300				
1882	100,000					
1883	80,000					
1884	115,000					
1885	29,730					
1886	83,591					
1887	111,532					
1888	100,000					
1889	143,701	274				
1890	93,612	82				
1891	99,329	19				
1892	87,515					
1893	66,354					
1894	41,326	14	20,000	$7,200		
1895	92,635		24,000	12,000		
1896	65,093		15,000	10,000		
1897	94,992	57	10,000	2,000		
1898	57,512				300	$2,500
1899	65,059		6,000	1,500	410	3,870
1900	109,444	[1]136	6,000	2,000	795	7,100
1901	98,487	[1]59	7,825	2,000	1,005	7,310
1902	60,015		10,000	2,500	2,170	17,040
1903	38,509				1,060	10,445
1904	62,061				2,565	21,350
1905	45,824				800	7,600
1906	48,295	240			915	8,690
1907	40,109	214			140	1,400
1908	33,066	325			760	8,585
1909	25,690	94			1,310	9,750
1910	35,289	150			476	4,048
1911	34,966	169			357	2,880
1912	31,271	150			772	6,415
1913	25,611	132			500	4,150
1914	18,686	57			607	6,120
1915	15,947	62	2,000	500	463	5,565
1916	21,279	55	3,000	750	[2]	
1917	23,086	95	[2]		[2]	
1918	8,028	72	[2]		[2]	
1919	16,260	134	[2]		[2]	
1920	2,538	19	[2]		[2]	
1921	2,054	37				
1922	1,330	10	[2]		[2]	
1923	2,260	12	[2]		[2]	
1924	1,269	7	[2]		[2]	
1925	13,142	62				
1926	1,243	6				
1927	1,729	14				

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HUMBOLDT COUNTY, 1880-1941

Miscellaneous stone[2], value	Natural gas		Miscellaneous and unapportioned		
	M. cu. ft.	Value	Amount	Value	Substance
$199,240					
251,586					
233,454					
193,502					
297,276					
160,845					
				$362	Platinum.
				140	Platinum.
			12.5 ozs.	204	Platinum.
			30.8 ozs.	555	Platinum.
13,074			1,280 cu. ft.	1,280	Granite.
29,170	600	$300	2,450 tons	7,640	Clay.
				20,985	Unapportioned, 1900-1909.
36,700	1,000	500	250 tons	750	Clay.
37,756	300	150	937 tons	937	Clay.
229,730	300	150	396 tons	400	Clay.
439,808	300	150	7,750 lbs.	1,201	Copper.
208,204	300	150	3 ozs.	115	Platinum.
335,292	[1]			1,320	Copper and natural gas.
			7 ozs.	296	Platinum.
60,260	[1]			192,255	Brick, clay, granite, natural gas.
			6 ozs.	351	Platinum.
27,014	[1]			9,312	Brick, clay, mineral water, natural gas, volcanic ash.
			370 tons	21,744	Chromite.
			210 tons	420	Clay.
51,082	640	85		116	Granite.
			1,520 tons	57,751	Manganese.
			2 ozs.	140	Platinum.
				2,516	Brick, mineral water, pumice.
				9,271	Brick and clay.
25,198	[1]			1,148	Mineral water and natural gas.
			859 tons	18,513	Manganese.
133,290	[1]			5,436	Brick, clay, granite, mineral water, natural gas, volcanic ash.
			75 tons	190	Pottery clay.
131,688	[1]			4,628	Brick, mineral water, natural gas, platinum, pumice.
				6,399	Brick and clay.
117,308	[1]			153	Mineral water and natural gas.
			4 fine ozs.	413	Platinum.
422,519	[1]			9,915	Clay and clay products, mineral water, natural gas, platinum.
476,449	[1]			7,753	Brick, clay, mineral water, natural gas, platinum.
699,740				6,207	Brick, pottery clay, mineral water, natural gas platinum.
				4,052	Brick and clay.
700,736				633	Natural gas and platinum.
554,963				6,096	Includes brick, clay, natural gas and platinum.

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Year	Gold, value	Silver, value	Mineral water		Brick	
			Gallons	Value	M	Value
1928	1,788	7			[2]	
1929	2,372	101			[2]	
1930	2,255	9			[2]	
1931	2,678	5			[2]	
1932	2,549	4			[2]	
1933	5,902	11				
1934	28,978	80			[2]	
1935	31,677	70			[2]	
1936	36,155	118			[2]	
1937	27,230	94			[2]	
1938	20,825	58			[2]	
1939	45,955	113			[2]	
1940	20,685	61			[2]	
1941	13,370	37			[2]	
Totals	$2,815,828	$3,905	[1]103,825	$40,450	[1]15,405	$135,318

[1] Recalculated to 'commercial' from 'coining value' as originally published.
[2] See under 'Unapportioned.'
[3] Includes crushed rock, rubble, rip-rap, sand, gravel.

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HUMBOLDT COUNTY, 1880-1941—Continued

Miscellaneous stone[2], value	Natural gas		Miscellaneous and unapportioned		
	M. cu. ft.	Value	Amount	Value	Substance
291,491	[2]			6,941	Brick, natural gas.
270,422	[2]		64,533 lbs.	11,361	Copper.
				9,422	Brick, clay, natural gas.
263,025	[2]			5,344	Brick, clay, natural gas, platinum.
194,324	[2]			2,979	Brick, clay, natural gas, platinum.
112,877	[2]			2,045	Brick, clay, natural gas, platinum.
65,012	[2]			126	Copper, natural gas.
50,371	[2]			2,003	Brick, clay (pottery), natural gas.
50,707	[2]			2,611	Brick, pottery clay, natural gas.
37,829	[2]			3,996	Brick, pottery clay, natural gas.
70,596	[2]			2,795	Brick, clay, natural gas, platinum.
73,705	[2]			2,593	Brick, clay, natural gas, platinum.
81,556	[2]			5,526	Brick, clay, natural gas, platinum.
105,825	[2]			7,019	Brick, pottery clay, natural gas.
53,392	[2]			18,466	Brick, chromite, clay, natural gas, platinum.
$7,786,916	[3]3,440	$1,485		$484,709	

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MINERAL PRODUCTION OF IMPERIAL COUNTY, 1907[1]-1941

Year	Brick		Gold, value	Silver, value	Miscellaneous stone, value	Miscellaneous and unapportioned		
	M	Value				Amount	Value	Substance
1907	1,000	$10,000						
1908	2,225	22,250	$5,848	$123		375 lbs.	$51	Copper.
1909	2,000	20,000	59,705	524				
1910	1,680	10,078	[2]87,341	[2]237				
1911	1,200	7,000	[2]97,855	[2]189				
1912	3,250	20,000			$10,000			
1913	5,500	44,000	31,700	94	12,000	750 cu. ft.	7,260	Marble.
1914	4,900	29,400	210,428	8,961		13,081 lbs.	1,730	Copper.
1915	2,958	17,916	14,369	42	40,095	65 lbs.	11	Copper.
							5,000	Other minerals.
1916	[3]		23,338	155	34,834		47,006	Brick, copper, lead, pumice strontium.
1917	and tile	19,260	919	5	65,660	1,907 tons	38,140	Manganese.
							5,416	Copper, potash, pumice.
1918	and tile	11,670	247	1,248	34,787	1,241 tons	46,900	Manganese
							14,840	Copper, lead, pumice.
1919	[3]			8,607	63,900		67,936	Brick, lead, pumice, salt.
1920	[3]			2,183	127,412	624 tons	16,500	Pumice.
							23,787	Other minerals.
1921	654	6,363	537	920	171,173		3,825	Other minerals.
1922			350	18,024	154,560		15,805	Brick, gypsum, lead, marble pumice.
1923					101,833		162,900	Brick, gold, gypsum, pumice, silver, soda (salt cake).
1924			258	1	78,032		61,617	Brick, gems (dumortierite), gypsum, pumice.
1925	[3]		[3]	[3]	148,942		182,023	Brick, cyanite, gypsum and pumice.
1926	[3]		238	19	312,130		154,927	Brick, cyanite, gypsum, lead and pumice.
1927	[3]		257	3	129,658		221,059	Brick, copper, cyanite, gypsum and pumice.
1928	[3]		25	1	98,790		142,862	Brick, copper, cyanite, feldspar, gypsum, pumice, silica.
1929			1,030	16	230,199		278,587	Bentonite, copper, cyanite, feldspar, mica, pumice, silica.
1930			148		218,686		149,189	Gypsum, pumice, cyanite.
1931			649	1	429,782		97,594	Gypsum, mica, pumice, cyanite.
1932			16,212	149	171,694		63,672	Clay (pottery), gypsum, mica, pumice, cyanite.
1933			6,293	76	86,962		73,527	Carbon dioxide, clay, gypsum, mica, cyanite.
1934			9,973	71	48,066		50,370	Carbon dioxide, cyanite, copper, gypsum, pumice, salt.
1935			59,406	2,981	20,695		41,053	Carbon dioxide, gypsum, mica, pumice, salt, cyanite.
1936			41,965	573	143,350		70,873	Carbon dioxide, copper, lead, gypsum, mica schist, pumice, salt.
1937			298,095	2,542	197,981	118,138 lbs.	14,295	Copper.
						8,210 lbs.	484	Lead.
							164,004	Carbon dioxide, clay, iceland spar, gypsum, mica schist, pumice, cyanite, salt.
1938			448,490	2,800	60,871	70,000 lbs.	6,860	Copper.
							87,206	Carbon dioxide, iceland spar, gypsum, mica schist, cyanite, salt.
1939			687,995	6,076	45,750	67,328 lbs.	7,002	Copper.
							75,440	Carbon dioxide, lead, iceland spar, gypsum, cyanite, limestone, manganese ore, salt.
1940			252,665	1,865	64,553	11,201 lbs.	1,266	Copper.
							140,831	Carbon dioxide, iceland spar, gypsum, cyanite, lime, stone, magnesite, salt, strontium.
1941			86,765	362	65,203		426,478	Calcium chloride, carbon dioxide, copper, iceland spar, gypsum, manganese ore, mica schist, cyanite, salt, strontium, sulphur.
Totals		[2]$217,937	[2]$2,443,101	[2]$58,848	[2]$3,367,778		$2,968,336	

[1] Imperial County was created August, 1907, from a part of San Diego County.
[2] Includes production of San Diego County.
[3] See under 'Unapportioned.'

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Year	Gold, value	Silver, value	Lead		Copper		Zinc		Borax, value
			Pounds	Value	Pounds	Value	Pounds	Value	
1880	$48,648	$173,916							
1881	170,000	140,000							
1882	220,000	130,000							
1883	90,000	38,000							
1884	80,000	82,000							
1885	24,998	73,461							
1886	20,156	101,670							
1887	10,649	103,370							
1888	25,000	75,000							
1889	193,957	30,706							
1890	62,432	88,320							
1891	35,466	112,730							
1892	13,930	35,995							
1893	25,945	52,475							
1894	52,639	83,640	900,000	$27,000					$81,298
1895	92,142	188,329	1,498,000	46,438					40,000
1896	238,507	108,619	1,220,000	36,600					24,900
1897	159,840	50,063	564,000	19,176					
1898	137,107	73,503	580,000	21,170	49,829	$3,986			33,000
1899	114,187	57,529	662,000	28,135					24,000
1900	213,655	113,483	971,000	38,840					13,901
1901	162,406	56,573	601,000	24,040	8,566	1,349			24,250
1902	74,397	14,484	257,500	9,013	1,100	126			36,394
1903	66,045	18,200	95,000	3,420	23,450	3,098			26,400
1904	150,474	7,122	124,000	5,270	25,508	3,252			
1905	135,959	29,741	345,680	16,247	151,606	23,649			
1906	19,449	13,358	208,018	11,857	4,145	800			
1907	57,241	44,440	261,140	13,096	6,779	1,356	144,213	$8,598	*
1908	308,873	30,900	683,401	28,244	6,820	938			*
1909	457,486	47,117	2,364,137	131,199	39,888	5,073			*
1910	408,509	129,590	2,866,227	127,385	58,801	7,489			*
1911	574,945	45,678	1,182,122	53,195	27,889	3,486	*		*
1912	369,758	45,316	1,207,593	54,342	48,584	8,016	*		*
1913	237,310	136,854	3,322,308	146,182	113,860	17,648	*7,149,523	449,701	*
1914	275,000	255,000	4,626,934	180,450	336,423	44,744	399,641	20,381	*
1915	317,905	127,894	4,323,639	203,211	154,722	27,076	4,625,162	573,520	*8,162,727
1916	131,722	232,441	11,185,321	771,787	274,032	67,412	5,758,703	771,666	[1]
1917	125,394	534,599	19,318,642	1,661,403	175,273	47,850	3,535,000	359,550	[1]
1918	100,240	441,548	12,223,471	867,866	338,518	83,614	2,517,045	229,051	[1]
1919	69,560	194,151	3,643,485	193,105	169,713	31,567	1,192,353	87,042	[1]
1920	55,634	258,929	4,612,338	368,987	144,286	26,549	[1]		
1921	80,373	86,020	1,052,253	47,351	45,725	5,898			
1922	85,265	256,009	6,264,138	344,528	69,537	9,388	[1]		[1]
1923	36,702	265,023	9,541,868	667,931	77,349	11,370			[1]

* Combined to conceal individual annual output.
† Includes crushed rock, rubble, rip-rap, sand and gravel.
[1] See Under 'Unapportioned.'
[2] Includes antimony, borax, gypsum, marble, molybdenum, salt, tungsten.
[3] Includes asbestos, barytes, borax, gypsum, marble, molybdenum.
[4] Includes borax, dolomite, marble, pumice, salt, soda, talc, tungsten.
[5] Includes borax, dolomite, fuller's earth, marble, volcanic ash, salt, talc, zinc.
[6] Includes borax, building stone, marble, pumice, soda.
[7] Includes borax, building stone, clay (pottery), fuller's earth, limestone, marble, pumice, soda, talc, zinc.
[8] Includes building stone, borates, fuller's earth, gems, marble, pumice, tungsten concentrates.

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INYO COUNTY, 1880-1941

Soda		Soapstone and talc		Marble		Miscellaneous and unapportioned		
Tons	Value	Tons	Value	Cu. ft.	Value	Amount	Value	Substance
1,530	$20,000			12,500	$62,500			
1,900	47,500			10,000	50,000			
3,000	65,000			3,000	24,000			
5,000	110,000							
7,000	154,000			4,000	12,000			
10,000	250,000							
1,000	50,000					20 tons	$700	Antimony.
8,000	400,000							
7,000	50,000							
*	*			20,000	20,000	300 tons	2,400	Salt.
*	*			3,000	3,000	400 tons	800	Salt.
*	*			17,000	17,000			
*	*			1,200	4,800			
*	*			1,000	4,000			
*	*							
*	*						1,417,217	Unapportioned, 1900-1909.
*	*					45,000 tons	31,500	Rubble.
*	*					46,450 tons	32,555	Rubble.
*	*						174	Gems.
*	*	1,050	$5,250				648	Rubble.
*	*	1,000	4,400	3,200	11,500		835	Rubble.
*	*					13,500 tons	54,000	Salt.
*	*	390	2,060	3,500	10,500	13,500 tons	54,000	Salt.
112,937	*496,250	1,513	14,000				80,430	Antimony, dolomite, marble, pumice, salt.
			Total...	[1]78,400	$219,300			
				Miscellaneous stone†, value				
10,593	264,825	685	4,606	23,040		3,596 tons	14,700	Dolomite.
							2,317,897	Other minerals[2].
19,604	861,160	4,736	41,044	3,000		11,315 tons	22,630	Dolomite.
							2,639,600	Other minerals[3].
[1]		9,635	72,549	5,000		14,390 tons	32,056	Dolomite.
						589 tons	854,025	Tungsten concentrates.
							2,491,727	Borax, limestone, salt, soda.
[1]		[1]		7,850		2,360 tons	12,000	Limestone.
							2,097,271	Other minerals[4].
23,132	933,023	[1]		1,190		15,240 tons	31,080	Limestone.
							2,214,008	Other minerals[5].
[1]		4,350	77,250	16,250		22,112 tons	49,073	Dolomite.
						1,185 tons	8,295	Fuller's earth.
							1,089,708	Other minerals.[6]
[1]		[1]		12,000		43,778 tons	72,284	Dolomite.
							1,358,207	Other minerals.[7]
24,116	662,747	5,981	104,976	19,500		47,542 tons	79,793	Dolomite.
							997,539	Other minerals.[8]

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Year	Gold, value	Silver, value	Lead		Copper		Zinc		Borax, value
			Pounds	Value	Pounds	Value	Pounds	Value	
1924	$19,997	$115,799	4,813,718	$385,098	79,995	$10,479			(1)
1925	43,774	117,763	6,307,105	548,196	73,003	10,367	145,000	$11,020	(1)
1926	26,871	77,693	6,541,741	523,339	42,462	5,945	76,889	5,767	(1)
1927	10,109	47,384	2,173,032	136,901	30,010	3,931			(1)
1928	10,781	23,948	1,733,120	100,421	22,250	3,204			(1)
1929	16,889	23,209	1,335,831	84,157	17,733	3,121			(1)
1930	20,466	42,961	3,452,159	172,608	19,607	2,549			(1)
1931	40,603	41,311	3,703,232	137,020	8,542	777			(1)
1932	42,113	24,105	2,204,108	66,123	12,672	798			(1)
1933	62,312	7,332	601,135	22,241	7,940	508	255,944	10,741	(1)
1934	266,109	25,943	530,037	19,611	33,363	2,669	721,719	31,034	(1)
1935	656,339	27,621	578,583	23,143	42,589	3,535	274,725	12,088	(1)
1936	744,135	39,895	556,399	25,594	57,230	5,265			(1)
1937	620,585	78,899	1,908,280	112,589	71,080	8,601	22,364	1,454	(1)
1938	625,240	26,581	322,004	14,812	65,844	6,453			(1)
1939	443,275	20,434	174,407	8,197	74,543	7,752	7,285	379	(1)
1940	415,555	61,623	2,130,330	106,576	212,038	23,960	130,821	8,242	(1)
1941	563,360	113,228	6,603,348	376,391	281,211	33,183	438,475	32,886	(1)
Totals	$10,958,758	$6,099,535	142,373,784	$9,011,405	3,404,515	$568,831	27,384,862	$2,613,120	[1]$8,466,870

[1] See under 'Unapportioned.'
[9] Includes alum, borates, building stone (tuff), fuller's earth, glauber salt, lime, limestone, magnesium, sulphate, pumice, radio galena crystals, soda (ash and bicarbonate), tungsten concentrates.
[10] Includes borates, building stone (tuff), fuller's earth, graphite, limestone, pumice, soda (ash and bicarbonate), tungsten concentrates.
[11] Includes borates, building stone (tuff), dolomite, gems, limestone, salt, tungsten concentrates.
[12] Includes borates, building stone (tuff), dolomite, fuller's earth, lime.
[13] Includes borates, dolomite, fuller's earth, gems, granite (tuff), salt, tungsten.
[14] Includes borates, dolomite, fuller's earth, gems, granite (tuff), limestone, marble, pumice, salt, tungsten.
[15] Includes barytes, bentonite, borates, dolomite, gems, granite (tuff), lime, marble, mineral water, pumice, salt, silica, talc, tungsten.
[16] Includes barytes, bentonite, borates, dolomite, lime, limestone, pumice, quicksilver, talc, miscellaneous stone.
[17] Includes bentonite, borates, dolomite, feldspar, quicksilver, silica, slate, talc, soda, sulphur.
[18] Includes bentonite, borates, pottery clay, molybdenite, silica, slate, talc, soda, sulphur, tungsten.
[19] Includes bentonite, borates, dolomite, gems, slate, soda, sulphur, talc.
[20] Includes bentonite, borates, dolomite, quicksilver, slate, talc, soda, sulphur, stone miscellaneous.
[21] Includes bentonite, borates, dolomite, onyx, quicksilver, talc, soda, stone miscellaneous, sulphur, tungsten, slate.
[22] Includes bentonite, borates, dolomite, iron ore, quicksilver, slate, soda, sulphur, talc and tungsten ore.
[23] Includes borates, dolomite, garnets, iron ore, limestone, onyx, quicksilver, slate, soda, sulphur, tungsten ore.
[24] Includes antimony, borates, bentonite, dolomite, garnets, iron ore, lime, limestone, onyx, molybdenum ore, quicksilver, soda, talc, tungsten ore.
[25] Includes bentonite, borates, dolomite, iron ore, limestone, mica schist, molybdenum ore, quicksilver, soda, sulphur, talc.
[26] Includes antimony, asbestos, bentonite, borates, dolomite, iron ore, limestone, mica, schist, molybdenum ore, pumice, soda, sulphur.

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INYO COUNTY, 1880-1941—Continued

Soda		Soapstone and talc		Miscellaneous stone, value	Miscellaneous and unapportioned		
Tons	Value	Tons	Value		Amount	Value	Substance
(1)		5,942	$98,806	$12,500	17,197 tons	$37,491	Dolomite.
						1,429,925	Other minerals.[9]
(1)		5,335	89,134			1,764,891	Other minerals.[10]
					2,275 tons	20,130	Fuller's earth.
60,473	$1,232,081	6,487	98,563	12,000	300 tons	1,750	Pumice.
						831,695	Other minerals.[11]
					344 tons	2,496	Pumice.
53,328	1,293,379	7,009	99,416	6,000		920,218	Other minerals.[12]
					163 tons	1,630	Pumice and volcanic ash.
86,664	1,292,165	8,563	121,177	44,831		234,410	Other minerals.[13]
70,440	1,525,060	8,274	120,875	224,625		298,275	Other minerals.[14]
67,119	1,273,098	(1)		310,675		438,409	Other minerals.[15]
56,251	903,511	(1)		(1)		224,486	Other minerals.[16]
					431 tons	4,845	Pumice and volcanic ash.
(1)		(1)		5,800		580,237	Other minerals.[17]
					48,487 tons	164,987	Dolomite.
(1)		(1)		18,690	894 tons	4,150	Pumice and volcanic ash.
						724,346	Other minerals.[18]
					673 tons	5,115	Pumice and volcanic ash.
(1)		(1)		66,081		877,163	Other minerals.[19]
					594 tons	10,034	Pumice and volcanic ash.
(1)		(1)		(1)		827,046	Other minerals.[20]
					1,567 tons	18,492	Pumice and volcanic ash.
(1)		(1)		(1)		633,466	Other minerals.[21]
					2,721 tons	29,518	Pumice and volcanic ash.
(1)		(1)		22,087		565,276	Other minerals.[22]
					2,061 tons	19,922	Pumice and volcanic ash.
(1)		18,581	194,588	32,026		664,271	Other minerals.[23]
					5,886 tons	56,170	Pumice.
(1)		(1)		4,230	4,811 tons	73,741	Sulphur.
						1,000,419	Other minerals.[24]
					11,521 lbs.	1,613	Antimony.
(1)		(1)		41,579	3,974 tons	20,690	Pumice.
					64,822 units	1,440,889	Tungsten ore.
						734,979	Other minerals.[25]
(1)		20,003	255,775	25,090	117,166 units	2,868,870	Tungsten ore.
						751,243	Other minerals.[26]
[4]629,107	$11,883,779	[5]109,534	$1,404,469	$897,714		$35,372,743	

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MINERAL PRODUCTION OF KINGS COUNTY, 1894 [1]-1941

Year	Brick		Gypsum		Natural gas		Quicksilver		Miscellaneous and unapportioned		
	M	Value	Tons	Value	M cu. ft.	Value	Flasks	Value	Amount	Value	Substance
1894											
1895											
1896											
1897											
1898	1,250	$8,450									
1899	1,650	11,550									
1900	750	5,000									
1901	1,000	5,000								$10,500	Unapportioned 1900-1909.
1902	3,500	19,000									
1903	3,400	24,200									
1904	3,100	23,300									
1905	3,400	2,4000					*250	$9,000			
1907	1,000	8,000							100 tons	1,000	Fuller's earth.
1908	3,000	24,000	100	$400					50 tons	1,000	Fuller's earth.
1909	1,000	8,500	100	300	360	$360			100 tons	2,000	Fuller's earth.
									20 tons	100	Mineral paint.
1910	400	3,200	100	490	1,200	600	100	4,525	100 tons	1,000	Fuller's earth.
									10 tons	270	Mineral paint.
1911			20	100	1,800	800					
1912			50	200	6,000	1,650					
1913			100	300	1,916	575			20 tons	60	Mineral paint.
										400	Other minerals.
1914			20	80	150	500			20 tons	160	Fuller's earth.
1915					258	608	[2]			18,000	Fuller's earth, quicksilver.
Totals	26,250	$184,200	490	$1,870							

Year	Petroleum										
	Barrels	Value									
1916			258	608	[2]					26,180	Other minerals.
1917			3,569	2,777							
1918			2,460	590	[2]					8,639	Other minerals.
1919			2,550	1,630	[2]					49,653	Other minerals.
1920			2,765	1,250	436	28,620					
1921			2,090	980	[2]					4,742	Other minerals.
1922			1,790	870						5,936	Other minerals.
1923			1,990	970						585	Other minerals.
1924			1,480	725							
1925			740	440						80	Other minerals.
1926			470	245						475	Other minerals.
1927			[2]							1,599	Natural gas and petroleum.
1928	198,784	$576,474								1,240	Miscellaneous stone.
1929	1,968,729	3,294,688	25,809,765	981,343						105	Unapportioned
1930	6,176,130	9,437,771	47,959,591	3,668,722						350	Unapportioned
1931	17,607,527	12,735,524	120,253,916	4,636,107						270	Unapportioned
1932	21,981,835	18,398,796	92,279,724	4,322,190							
1933	21,663,622	20,253,320	104,893,813	5,216,344						4,588	Unapportioned
										694	Gold.
										3	Silver.
1934	21,393,483	23,104,962	96,939,145	4,957,070						2,560	Miscellaneous stone.
										2,100	Unapportioned
1935	7,167,687	7,490,233	65,372,401	3,088,477		[1]				83	Gold.
										1,209	Quicksilver, stone.
1936	5,317,882	7,115,273	47,529,901	2,834,058						600	Unapportioned
1937	5,800,589	8,026,823	45,924,599	2,944,800						964	Unapportioned
1938	8,717,827	12,117,779	53,242,662	3,290,987						2,118	Unapportioned
1939	9,871,899	14,115,828	46,054,600	2,536,102	25	2,583				2,930	Stone.
1940	9,212,121	11,625,696	36,016,041	2,018,422	23	3,827				1,500	Stone.
1941	7,789,574	9,479,813	29,639,352	1,818,088						2,166	Unapportioned
Totals	144,867,689	$157,772,980	811,947,356	$42,328,879	[3]834	$144,388				$155,958	

* Flasks of 75 pounds, June, 1904-December, 1927 (inc.); of 76 pounds since.

[1] Kings County was created March 22, 1893, from a part of Tulare County, and in 1909 extended by annexing a portion of Fresno County.

[2] See under 'Unapportioned.'

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MINERAL PRODUCTION OF RIVERSIDE COUNTY, 1893 *-1941

Year	Gold, value	Silver, value	Coal		Salt		Magnesite		Brick		Pottery clay		Lime and limestone		Miscellaneous stone,[1] value	Mineral water		Miscellaneous and unapportioned		
			Tons	Value	Tons	Value	Tons	Value	M.	Value	Tons	Value	Barrels	Value		Gallons	Value	Amount	Value	Substance
1891																		125,289 lbs.	$27,564	Tin.
1892																		126,000 lbs.	32,400	Tin.
1893	$42,412																			
1894	93,322		7,891	$16,142	1,981	$3,962												50 tons	100	Gypsum.
1895	285,106	$2,550	7,950	15,000	4,000	8,000					3,700	$4,230	24,000	$19,200	$24,000			18 tons	144	Gypsum.
1896	262,800	13,450	4,982	9,964	4,317	8,634					7,700	9,400	[3]10,000 20,000	10,000 20,000	27,955					
1897	147,227	4,000	6,282	15,705	4,840	9,680					22,019	22,750	[3]6,000 15,000	6,000 15,000	17,000			6 tons	160	Mineral paint.
1898	189,188	1,384	6,200	15,000	5,000	10,000					11,700	11,250						10 tons	200	Asbestos.
1899	163,010	2,000	7,905	19,762	3,600	7,200			560	$5,800	9,500	10,450	8,000	7,000	8,000			30 tons	750	Asbestos.
1900	149,292	6,848	6,000	15,000	4,000	8,000			4,750 1,967	39,500 28,842	14,900 24,560	16,800 18,089	13,476	13,476	8,850 57,600			1,000 tons 50 tons 200 tons	1,500 1,250 200	Glass sand. Asbestos. Glass sand.
1901	109,747	2,150	2,800	7,000	4,000	12,000			3,201	89,787	30,489	16,624	18,000	18,000	53,400			110 tons 500 tons	4,400 500	Asbestos. Glass sand.
1902	47,947	94	1,200	3,000	20,000	20,000			4,153	114,165	34,320	38,920	20,000	17,000	92,996			300 tons 100 tons	3,000 500	Gypsum. Gypsum.
1903	13,453	136			10,000	20,000			3,817	164,020	53,857	65,332	[3]9,000 25,000	8,500 21,250	152,258			12,000 cu. ft. 5,000 cu. ft.	1,500 2,500	Marble. Marble.
1904	7,488	80			15,000	15,000			4,712	71,380	41,966	49,232	20,000	20,000	415,306			20 tons 2,500 cu. ft.	2,400 2,500	Bismuth. Marble.
1905	35,690	346							2,838	69,195	49,720	67,970	20,000	20,000	360,168				2,500	Gems.
1906	4,432	251							4,607	92,140	60,123	57,712	14,000	20,000	171,638				2,500	Gems.
1907	3,386	26					75	$1,750	3,800	102,000	87,260	174,713	6,000	6,500	571,052			3,000 cu. ft.	9,000	Marble.
1908	5,884	112					2,000	4,000	4,803	74,086	71,231	89,752	[3]8,000 8,300	8,000 8,300	448,478			3,206 lbs. 502 lbs. 10 tons 22,665 lbs. 3 tons	50 170 100 100 2,816 300	Gems. Lead. Copper. Asbestos. Copper. Asbestos.
1909	186	24					324	3,888	22,037	265,550	86,028	97,971	3,000	3,000	121,827	30,000	$3,000	400 tons 8,000 lbs.	2,000 1,016	Gypsum. Copper.
1910	5,585	28					500	4,000	10,267	91,543	101,411	156,844	[3]141,722	120,889	116,357	90,000	9,000	150 tons	877,192 1,500 250	Unapportioned, 1900-1909. Mineral paint. Gems.
1911	[2]20,623	2,121					575	4,600	3,675	28,572	67,295	79,961			474,018	90,580	11,500	6,753 lbs. 800 tons	250 844 3,000	Gems. Copper. Glass sand.
1912	20,202	254					878	8,780	2,500	20,000	72,046	93,418	[3]90,831	63,582	567,309	44,256	4,250	929 lbs. 6,000 lbs.	800 42 990	Gems. Lead. Copper.
1913	12,501	104					569	4,552	3,530	30,300	88,936	89,963			536,844	200,000	20,000	1,000 tons 8,971 lbs.	3,532,857 3,000 1,000 1,391	Other minerals, 1910-1912. Gypsum. Gems. Copper.
1914	10,000	100							1,610	36,713	70,136	69,420			206,802	100,000	2,000	36,102 lbs. 5,350 tons 3,450 tons	1,372,314 4,802 7,825 1,241,924 13,650	Other minerals. Copper. Gypsum. Other minerals. Gypsum.
1915	10,769	1,522							1,055	16,880	59,514	54,840			213,440	200,000	10,000	32,072 lbs. 23,825 lbs. 58,617 lbs. 8,660 cu. ft. 4,220 tons 350 lbs. 901 tons	1,022,814 1,507 4,169 14,420 4,890 8,340 24 1,624	Cement, potash, silica. Lead. Copper. Copper. Granite. Gypsum. Lead. Silica.
1916	7,855	338							1,831	28,593	56,228	56,090			159,555				1,052,505	Cement, feldspar, magnesite, manganese, mineral water, potash.
1917									and tile	165,892	70,798	55,491			72,364			28,838 lbs. 11,097 tons 1,923 tons 1,157 lbs. 770 tons	7,873 422,900 3,461 3,001 100 2,400 1,227,073	Copper. Feldspar. Granite. Gypsum. Lead. Silica. Cement, fluorspar, gems, magnesite, manganese, mineral water, potash, silver.
1918	392	1,541								296,540	48,195	80,454			127,962			19,485 lbs. 2,288 tons 3,791 tons 1,400 tons	4,813 11,733 3,326 152,693 4,800 1,004,787	Copper. Feldspar. Granite. Manganese. Silica. Cement, fluorspar, gems, gypsum, lead, magnesite, mineral water, potash.
1919	213	415								224,379	42,207	61,006			102,399			10,590 lbs. 200 tons 1,808 tons 3,034 tons	1,970 17,975 425 49,324 15,112 2,103,760	Copper. Granite. Gypsum. Manganese ore. Silica. Cement, coal, feldspar, fuller's earth, lead, magnesite, mineral water, potash.
1920										489,209	76,317	126,313			296,499			1,094 tons 3,195 tons	6,168 26,408 12,581 4,171,030	Feldspar. Granite. Silica. Cement, coal, gems, gypsum, mineral water, potash.
1921										376,553	84,224	111,219			431,671	56,400	2,945	2,094 tons 1,625 tons	14,808 12,852 6,357 3,927,493	Feldspar. Granite. Silica. Cement, coal, gems, potash.
1922										535,772	81,577	181,897			400,560	58,115	16,672	1,087 tons 1,877 tons 5,000 tons	7,609 30,210 11,391 2,059,806 39,000	Feldspar. Granite. Silica (quartz). Cement, coal, fluorite (optical). Feldspar.
1923										676,584	85,185	246,033			714,899	63,855	5,277	2,300 tons 8,899 lbs. 2,205 tons	29,778 15,000 5,367,282 1,116 20,162	Granite. Silica (quartz). Cement, coal, gems, gold gypsum, silver. Copper. Feldspar.
1924	1,070	581								493,746	121,193	166,692			561,861	78,560	23,021	26,817 lbs. 3,160 tons 23,134 lbs. 1,990 tons	17,680 2,145 24,579 4,195,541 3,285 16,090	Granite. Lead. Silica. Cement, coal, gypsum, mica schist. Copper. Feldspar.
1925	3,687	2,570								533,650	74,787	155,315			542,020			135,872 lbs. 8,121 tons 22,125 lbs. 26,140 tons	32,234 11,821 84,706 3,793,730 3,096 71,907	Granite. Lead. Silica (quartz). Cement, coal, gypsum, mineral water. Copper. Gypsum.
1926	2,931	3,135								610,100	58,528	178,383			1,180,278			173,207 lbs. 20,587 tons	13,857 72,510 4,058,056	Lead. Silica (quartz). Cement, feldspar, mineral water, onyx, slate.
1927	1,492	1,919								696,795	118,510	198,330			1,244,043			19,201 lbs. 121,667 lbs. 14,262 tons 13,263 lbs. 99,097 lbs. 7,804 tons	2,515 7,665 60,991 1,244,043 1,910 5,747 27,632 4,635,082	Copper. Lead. Silica. Cement, feldspar, granite, gypsum, lime, mineral water, onyx, zinc. Copper. Lead. Silica (quartz). Cement, feldspar, granite, gypsum, limestone, manganese, mineral water, slate, tin.
1928	2,180	1,563								499,612	115,538	543,671			557,504			1,471 lbs. 28,140 tons	259 41,647 4,040,359	Copper. Silica (quartz and glass sand). Cement, feldspar, granite, gypsum, mineral water, tin.
1929	244	782								544,850	184,179	319,130			454,589			5,878 lbs. 283 tons 4,217 tons	764 1,742 17,676 2,730,784	Copper. Feldspar. Silica (quartz and glass sand). Asbestos, brick and hollow tile, cement, gypsum, granite, mineral water.
1930	4,833	38								102,419	180,727				284,072			401 lbs. 1,939 lbs.	36 72 2,195,267	Copper. Lead. Brick and hollow tile, cement, feldspar, gems, granite, gypsum, mineral water, silica (quartz and glass sand).
1931	2,524	13								56,341	79,968				248,623				1,426,883	*Brick and hollow tile, cement, gems, copper, gypsum, lead, mineral water, silica (quartz and glass sand).*
1932	20,788	127								23,058	29,839				204,218			663 lbs.	42 1,932,806	Copper. Brick and hollow tile, cement, gems, gypsum, lead, mineral water, silica (glass sand).
1933	14,993	105								18,228	32,965				237,827			1,606 lbs. 1,207 lbs.	128 45 2,376,911	Copper. Lead. Brick and hollow tile, cement, gems, gypsum, manganese ore, mineral water, silica (glass sand).
1934	41,899	429								16,081	35,101				136,032			2,073 lbs. 15,393 lbs.	172 616 1,871,393	Copper. Lead. Brick and hollow tile, cement, gems, gypsum, manganese ore, mineral water, glass sand.
1935	112,057	1,953								54,356	73,809				166,623			6,355 lbs. 53,983 lbs.	585 2,483 3,777,472	Copper. Lead. Brick and hollow tile, cement, gems, gypsum, vermiculite mica, mineral water, glass sand.
1936	216,125	4,827								66,151	105,975				341,703			4,028 lbs.	238 3,377,709	Lead. Brick and hollow tile, cement, granite, gypsum, mineral water, glass sand.
1937	215,040	4,269								64,462	117,798				342,073			15,044 lbs. 241,510 lbs.	1,479 11,109 2,806,533	Copper. Lead. Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, glass sand, paving blocks.
1938	77,000	3,387								47,977	87,489				319,796			68,683 lbs. 634,071 lbs.	7,143 29,801 2,658,294	Copper. Lead. Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, glass sand.
1939	94,395	11,604								59,030	115,120				271,545			22,269 lbs. 536,457 lbs.	2,516 26,823 3,277,597	Copper. Lead. Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, sandstone, glass sand, paving blocks.
1940	83,160	22,510								61,291	124,338				381,803				4,688,623	Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, glass sand, sandstone.
1941	59,430	23,040								122,251	252,371				1,327,548					
Totals	$2,603,008	$122,726	[4]51,210	$116,573	76,738	$122,476	[4]4,921	$31,570		[4]$7,512,748	2,978,422	$5,012,165		$425,697	$15,753,365	[4]1,011,766	$107,665		$85,240,840	

* Riverside County was created March 11, 1893, from portions of San Bernardino and San Diego Counties.
1 Includes granite, crushed rock, gravel, sand, paving blocks.
2 Includes part of Los Angeles County.
3 Tons of limestone.
4 See under 'Unapportioned.'

19487—tipin between pages 240-241

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MINERAL PRODUCTION OF LAKE COUNTY, 1873-1941

	Quicksilver		Mineral water		Chromite		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
	Flasks	Value	Gallons	Value	Tons	Value		Amount	Value	Substance
3	880	$70,790								
4	1,695	178,280								
5	8,821	743,287								
6	14,199	624,756								
7	18,100	675,130								
8	14,428	474,681								
9	15,582	309,303								
0	17,148	531,588								
1	17,393	518,833								
2	10,193	287,748								
3	6,481	186,329								
4	4,182	127,551								
5	4,765	146,524								
6	3,498	124,179								
7	4,307	182,509								
8	6,636	282,030	*	*						
9	4,713	212,085	*	*						
0	4,232	222,180	*	*						
1	4,975	225,119	*	*						
2	11,140	453,509	*	*						
3	9,731	357,614	*	*						
4	12,471	382,954	*	*						
5	12,856	465,074	87,500	$42,000						
6	6,307	232,484	65,920	32,460						
7	3,585	134,546	511,950	76,585						
8	1,729	64,746	523,000	37,350						
9	2,954	128,179	166,020	75,924						
0	3,165	127,345	758,600	45,400						
1	4,395	211,324	201,706	120,360						
2	3,611	161,568	241,100	126,663						
3	2,595	106,397	381,040	187,621						
4	[2]2,854	109,719	659,000	221,000						
5	1,462	51,937	489,000	219,500						
6	1,066	38,909	365,000	160,000						
7	802	30,604	304,340	130,936						
8	1,300	54,951	246,545	118,300			$10,000			
9	1,075	56,277	265,000	108,270					28,423	Unapportioned, 1900-1909.
0	1,048	47,422	212,546	95,005						
1	899	41,363	227,440	58,933						
2	209	8,786	202,000	114,500						
3	395	15,891	209,750	109,938						
4	331	16,236	254,150	47,267						
5	492	41,660	165,130	24,371			5,000		1,503	Copper, gold, silver.
6	1,139	106,496	195,650	54,160	871	$15,070	4,500		770	Other minerals.
7	1,067	107,071	129,157	22,685	1,466	36,326	2,500	85 tons	1,900	Manganese.
									70	Other minerals.
8	1,540	172,173	87,067	15,006	476	24,790	1,000		2,907	Manganese and natural gas.
9	229	20,604	62,839	17,471	*		1,200		100	Other minerals.
0	385	24,314	43,693	16,413	84	1,560	13,200	247 tons	7,816	Manganese.
									250	Other minerals.
1	22	880	54,715	26,751			146,508		250	Other minerals.
2	38	2,000	60,420	29,370			16,669		250	Other minerals.
3	17	1,050	63,730	44,738			55,000		250	Other minerals.
4	*		66,420	59,423			22,833		14,140	Natural gas and quicksilver.
5			62,970	57,793			15,300		255	Copper and natural gas.
6	86	7,778	57,000	58,235			*		9,680	Natural gas and miscellaneous stone.
7	245	29,234	45,643	51,149			4,445	440 M cu. ft.	220	Natural gas.
								1,000 M cu. ft.	500	Natural gas.
8	1,206	145,718	123,500	22,750			19,395		740	Other minerals.
9	1,697	203,247	30,956	22,100			154,200		8,153	Gems, natural gas.

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MINERAL PRODUCTION OF LAKE COUNTY, 1873-1941—Continued

Year	Quicksilver		Mineral water		Chromite		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
	Flasks	Value	Gallons	Value	Tons	Value		Amount	Value	Substance
1930	1,760	$195,710	36,758	$14,524	------	------	$58,059	------	$71	Other minerals.
1931	3,046	251,879	24,916	14,034	------	------	14,785	------	70	Other minerals.
1932	1,038	57,850	18,870	6,050	------	------	33,164	------	20	Other minerals.
1933	1,610	90,592	11,799	11,177	------	------	32,052	------	30	Other minerals.
1934	3,497	221,837	11,372	11,005	------	------	27,426	------	213	Other minerals.
1935	4,097	285,426	22,410	13,909	------	------	21,315	------	65	Gold.
								------	35	Other minerals.
1936	3,795	292,571	29,729	12,545	------	------	35,929	------	21	Other minerals.
1937	4,012	341,444	38,489	33,858	------	------	17,258	------	25	Other minerals.
1938	3,718	265,430	26,560	12,770	------	------	2,898	------	------	
1939	4,155	416,150	23,850	7,100	------	------	28,290	------	35	Other minerals.
1940	4,966	845,592	20,588	10,902	------	------	27,883	------	50	Other minerals.
1941	6,053	1,045,726	9,957	4,635	------	------	41,447	------	75	Other minerals.
Totals	298,118	$14,593,169	7,895,795	$2,802,936	[2]2,897	$77,746	$812,256	------	$78,887	

* Bartlett Springs since 1888 and Witter Springs since 1899 reported to U. S. Geological Survey, but no segregated figures available for Lake County previous to 1895.

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.

[2] Flasks of 76½ pounds previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.

[3] See under 'Unapportioned.'

In addition to the above, Lake County has produced the following:

Borax	Sulphur	Pounds	Value
1864 to 1868 Borax Lake yielded 590 tons refined borax, worth $414,636; 1872 from Lake Hachinhama, 140 tons, worth $89,600; total 730 tons, worth $504,236.	1865	214,650	$8,030
	1866	675,963	21,970
	1867	487,603	13,420
	1868	503,481	10,080
	Totals	1,881,697	$53,500

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MINERAL PRODUCTION OF RIVERSIDE COUNTY, 1893 *-1941

Year	Gold, value	Silver, value	Coal		Salt		Magnesite		Brick		Pottery clay		Lime and limestone		Miscellaneous stone,[1] value	Mineral water		Miscellaneous and unapportioned		
			Tons	Value	Tons	Value	Tons	Value	M.	Value	Tons	Value	Barrels	Value		Gallons	Value	Amount	Value	Substance
1891																		125,289 lbs.	$27,564	Tin.
1892																		126,000 lbs.	32,400	Tin.
1893	$42,412																			
1894	93,322		7,891	$16,142	1,981	$3,962												50 tons	100	Gypsum.
1895	285,106	$2,550	7,950	15,000	4,000	8,000					3,700	$4,230	24,000	$19,200	$24,000			18 tons	144	Gypsum.
1896	262,800	13,450	4,982	9,964	4,317	8,634					7,700	9,400	[3]10,000 20,000	10,000 20,000	27,955 17,000					
1897	147,227	4,000	6,282	15,705	4,840	9,680					22,019	22,750	[3]6,000 15,000	6,000 15,000				6 tons	160	Mineral paint.
1898	189,188	1,384	6,200	15,000	5,000	10,000					11,700	11,250						10 tons	200	Asbestos.
1899	163,010	2,000	7,905	19,762	3,600	7,200			560	$5,800	9,500	10,450	8,000	7,000	8,000			30 tons	750	Asbestos.
1900	149,292	6,848	6,000	15,000	4,000	8,000			4,750	39,500	14,900	16,800	13,476	13,476	8,850			1,000 tons	1,500	Glass sand.
1901	109,747	2,150	2,800	7,000	4,000	12,000			1,967	28,842	24,560	18,089			57,600			50 tons	1,250	Asbestos.
1902	47,947	94	1,200	3,000	20,000	20,000			3,201	89,787	30,489	16,624	18,000	18,000	53,400			200 tons	200	Glass sand.
1903	13,453	136			10,000	20,000			4,153	114,165	34,320	38,920	20,000	17,000	92,996			110 tons	4,400	Asbestos.
1904	7,488	80			15,000	15,000			3,817	164,020	53,857	65,332	[3]9,000 25,000	8,500 21,250	152,258			500 tons	500	Glass sand.
1905	35,690	346							4,712	71,380	41,966	49,232	20,000	20,000	415,306			300 tons	3,000	Gypsum.
1906	4,432	251							2,838 4,607	69,195 92,140	49,720 60,123	67,970 57,712	20,000 14,000	20,000 20,000	360,168 171,638			100 tons	500	Gypsum.
1907	3,386	26					75	$1,750	3,800	102,000	87,260	174,713	6,000	6,500	571,052			12,000 cu. ft.	1,500	Marble.
1908	5,884	112					2,000	4,000	4,803	74,086	71,231	89,752	[3]8,000 8,300	8,000 8,300	448,478			5,000 cu. ft.	2,500	Marble.
1909	186	24					324	3,888	22,037	265,550	86,028	97,971	3,000	3,000	121,827	30,000	$3,000			
1910	5,585	28					500	4,000	10,267	91,543	101,411	156,844	[3]141,722	120,889	116,357	90,000	9,000			
1911	[2]20,623	2,121					575	4,600	3,675	28,572	67,295	79,961			474,018	90,580	11,500			
1912	20,202	254					878	8,780	2,500	20,000	72,046	93,418	[3]90,831	63,582	567,309	44,256	4,250			
1913	12,501	104					569	4,552	3,530	30,300	88,936	89,963			536,844	200,000	20,000			
1914	10,000	100							1,610	36,713	70,136	69,420			206,802	100,000	2,000			
1915	10,769	1,522							1,055	16,880	59,514	54,840			213,440	200,000	10,000			
1916	7,855	338							1,831	28,593	56,228	56,090			159,555					
1917									and tile		165,892	70,798	55,491		72,364					
1918	392	1,541									296,540	48,195	80,454		127,962					
1919	213	415									224,379	42,207	61,006		102,399					
1920											489,209	76,317	126,313		296,499					
1921											376,553	84,224	111,219		431,671	56,400	2,945			
1922											535,772	81,577	181,897		400,560	58,115	16,672			
1923											676,584	85,185	246,033		714,899	63,855	5,277			
1924	1,070	581									493,746	121,193	166,692		561,861	78,560	23,021			
1925	3,687	2,570									533,650	74,787	155,315		542,020					
1926	2,931	3,135									610,100	58,528	178,383		1,180,278					
1927	1,492	1,919									696,795	118,510	198,330		1,244,043					
1928	2,180	1,563									499,612	115,538	543,671		557,504					
1929	244	782									544,850	184,179	319,130		454,589					
1930	4,833	38										102,419	180,727		284,072					
1931	2,524	13										56,341	79,968		248,623					
1932	20,788	127										23,058	29,839		204,218					
1933	14,993	105										18,228	32,965		237,827					
1934	41,899	429										16,081	35,101		136,032					
1935	112,057	1,953										54,356	73,809		166,623					
1936	216,125	4,827										66,151	105,975		341,703					
1937	215,040	4,269										64,462	117,798		342,073					
1938	77,000	3,387										47,977	87,489		319,796					
1939	94,395	11,604										59,030	115,120		271,545					
1940	83,160	22,510										61,291	124,338		381,803					
1941	59,430	23,040										122,251	252,371		1,327,548					
Totals	$2,603,008	$122,726	[4]51,210	$116,573	76,738	$122,476	[4]4,921	$31,570			[4]$7,512,748	2,978,422	$5,012,165		$425,697	$15,753,365	[4]1,011,766	$107,665	$85,240,840	

																		1,000 tons	3,000	Gypsum.
																		8,971 lbs.	1,000	Gems.
																			1,391	Copper.
																		36,102 lbs.	1,372,314	Other minerals.
																		5,350 tons	4,802	Copper.
																			7,825	Gypsum.
																		3,450 tons	1,241,924	Other minerals.
																			13,650	Gypsum.
																		32,072 lbs.	1,022,814	Cement, potash, silica.
																		23,825 lbs.	1,507	Lead.
																		58,617 lbs.	4,169	Copper.
																		8,660 cu. ft.	14,420	Copper.
																		4,220 tons	4,890	Granite.
																		350 lbs.	8,340	Gypsum.
																		901 tons	24	Lead.
																			1,624	Silica.
																			1,052,505	Cement, feldspar, magnesite, manganese, mineral water, potash.
																		28,838 lbs.	7,873	Copper.
																		11,097 tons	422,900	Feldspar.
																			3,461	Granite.
																		1,923 tons	3,001	Gypsum.
																		1,157 lbs.	100	Lead.
																		770 tons	2,400	Silica.
																			1,227,073	Cement, fluorspar, gems, magnesite, manganese, mineral water, potash, silver.
																		19,485 lbs.	4,813	Copper.
																		2,288 tons	11,733	Feldspar.
																			3,326	Granite.
																		3,791 tons	152,693	Manganese.
																		1,400 tons	4,800	Silica.
																			1,004,787	Cement, fluorspar, gems, gypsum, lead, magnesite, mineral water, potash.
																		10,590 lbs.	1,970	Copper.
																			17,975	Granite.
																		200 tons	425	Gypsum.
																		1,808 tons	49,324	Manganese ore.
																		3,034 tons	15,112	Silica.
																			2,103,760	Cement, coal, feldspar, fuller's earth, lead, magnesite, mineral water, potash.
																		1,094 tons	6,168	Feldspar.
																		3,195 tons	26,408	Granite.
																			12,581	Silica.
																			4,171,030	Cement, coal, gems, gypsum, mineral water, potash.
																		2,094 tons	14,808	Feldspar.
																		1,625 tons	12,852	Granite.
																			6,357	Silica.
																			3,927,493	Cement, coal, gems, potash.
																		1,087 tons	7,609	Feldspar.
																		1,877 tons	30,210	Granite.
																			11,391	Silica (quartz).
																			2,059,806	Cement, coal, fluorite (optical).
																		5,000 tons	39,000	Feldspar.
																			29,778	Granite.
																		2,300 tons	15,000	Silica (quartz).
																			5,367,282	Cement, coal, gems, gold gypsum, silver.
																		8,899 lbs.	1,116	Copper.
																		2,205 tons	20,162	Feldspar.
																			17,680	Granite.
																		26,817 lbs.	2,145	Lead.
																		3,160 tons	24,579	Silica.
																			4,195,541	Cement, coal, gypsum, mica schist.
																		23,134 lbs.	3,285	Copper.
																		1,990 tons	16,090	Feldspar.
																			32,234	Granite.
																		135,872 lbs.	11,821	Lead.
																		8,121 tons	84,706	Silica (quartz).
																			3,793,730	Cement, coal, gypsum, mineral water.
																		22,125 lbs.	3,096	Copper.
																		26,140 tons	71,907	Gypsum.
																		173,207 lbs.	13,857	Lead.
																		20,587 tons	72,510	Silica (quartz).
																			4,058,056	Cement, feldspar, mineral water, onyx, slate.
																		19,201 lbs.	2,515	Copper.
																		121,667 lbs.	7,665	Lead.
																		14,262 tons	60,991	Silica.
																			1,244,043	Cement, feldspar, granite, gypsum, lime, mineral water, onyx, zinc.
																		13,263 lbs.	1,910	Copper.
																		99,097 lbs.	5,747	Lead.
																		7,804 tons	27,632	Silica (quartz).
																			4,635,082	Cement, feldspar, granite, gypsum, limestone, manganese, mineral water, slate, tin.
																		1,471 lbs.	259	Copper.
																		28,140 tons	41,647	Silica (quartz and glass sand).
																			4,040,359	Cement, feldspar, granite, gypsum, mineral water, tin.
																		5,878 lbs.	764	Copper.
																		283 tons	1,742	Feldspar.
																		4,217 tons	17,676	Silica (quartz and glass sand).
																			2,730,784	Asbestos, brick and hollow tile, cement, gypsum, granite, mineral water.
																			36	Copper.
																		401 lbs.	72	Lead.
																		1,939 lbs.	2,195,267	Brick and hollow tile, cement, feldspar, gems, granite, gypsum, mineral water, silica (quartz and glass sand).
																			1,426,883	Brick and hollow tile, cement, gems, copper, gypsum, lead, mineral water, silica (quartz and glass sand).
																			42	Copper.
																		663 lbs.	1,932,806	Brick and hollow tile, cement, gems, gypsum, lead, mineral water, silica (glass sand).
																			128	Copper.
																		1,606 lbs.	45	Lead.
																		1,207 lbs.	2,376,911	Brick and hollow tile, cement, gems, gypsum, manganese ore, mineral water, silica (glass sand).
																			172	Copper.
																		2,073 lbs.	616	Lead.
																		15,393 lbs.	1,871,393	Brick and hollow tile, cement, gems, gypsum, manganese ore, mineral water, glass sand.
																			585	Copper.
																		6,355 lbs.	2,483	Lead.
																		53,983 lbs.	3,777,472	Brick and hollow tile, cement, gems, gypsum, vermiculite mica, mineral water, glass sand.
																			238	Lead.
																		4,028 lbs.	3,377,709	Brick and hollow tile, cement, granite, gypsum, mineral water, glass sand.
																			1,479	Copper.
																		15,044 lbs.	11,109	Lead.
																		241,510 lbs.	2,806,533	Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, glass sand, paving blocks.
																			7,143	Copper.
																		68,683 lbs.	29,801	Lead.
																		634,071 lbs.	2,658,294	Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, glass sand.
																			2,516	Copper.
																		22,269 lbs.	26,823	Lead.
																		536,457 lbs.	3,277,597	Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, sandstone, glass sand, paving blocks.
																			4,688,623	Brick and hollow tile, cement, granite, gypsum, limestone, mineral water, glass sand, sandstone.

* Riverside County was created March 11, 1893, from portions of San Bernardino and San Diego Counties.
1 Includes granite, crushed rock, gravel, sand, paving blocks.
2 Includes part of Los Angeles County.
3 Tons of limestone.
4 See under 'Unapportioned.'

19487—tipin between pages 240-241

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MINERAL PRODUCTION OF LASSEN COUNTY, 1880-1941

Year	Gold, value	Silver, value	Miscellaneous stone, value	Miscellaneous and unapportioned		
				Amount	Value	Substance
1880	$25,900					
1881	71,000	$1,000				
1882	100,000	20,000				
1883	20,000	5,000				
1884	[1]119,060	341				
1885	15,000	150				
1886	25,812	135				
1887	24,108	304				
1888	50,000	200				
1889	97,503	215				
1890	14,890	300				
1891	3,676					
1892	15,400					
1893						
1894	35,283					
1895	25,000					
1896	40,300					
1897	49,100	850				
1898	37,460	300				
1899	28,898					
1900	19,807	676				
1901	5,900	200				
1902	23,410	244				
1903	91,102	1,203				
1904	116,993	1,515				
1905						
1906	[2]	[2]				
1907	[2]	[2]				
1908	7,284	783				
1909	[3]116,327	[3]1,463			$217,521	Unapportioned, 1900-1909
1910	[4]82,180	[4]492				
1911	[2]	[2]			1,522	Gold and silver.
1912						
1913		2	$2,030			[5]
1914	1,250	4	775			[5]
1915			870			
1916			9,725			
1917			376			
1918			800			
1919			1,100			
1920			7,313		5,000	Other minerals.
1921	39,943	1,234	42,308			
1922	[2]	[2]	9,540		17,877	Brick, gold and silver.[4]
1923	[2]	[2]	7,600		240	Gold and silver.
1924	2,250	44	35,614			
1925	1,130	24	1,250			
1926	67	1	18,995			
1927	531	9	47,885		1,000	Granite curbing.
1928	492	8	73,399	1,550 cu.ft.	2,600	Granite.
1929	168	2	88,328		200	Other minerals.
1930	2,946	23	14,600		525	Other minerals.
1931	241	2			1,600	Other minerals.
1932	460	3	109,105			
1933	8,309	68	35,228		2,094	Copper, granite, lead.
1934	14,689	278	[2]	304 lbs.	24	Copper.
					13,327	Other minerals.
1935	12,182	285	8,728		537	Other minerals.
1936	31,010	1,815	32,956		502	Other minerals.
1937	21,175	1,133	63,257		675	Other minerals.
1938	[2]	[2]	58,118		428	Gold, granite, silver.
1939	3,325	241	42,711			
1940	2,695	59	11,962		152	Copper, granite.
1941	2,135	44	39,942		201	Copper, granite.
Totals	[2]$1,407,391	[2]$41,130	[2]$765,515		$266,025	

[1] Lawver, A. M., in 'Production of Precious Metals in U. S.': Report of Director of Mint, 1884, p. 175, 1885.
[2] See under 'Unapportioned.'
[3] Includes Modoc and Colusa Counties' production.
[4] Includes Colusa County production.
[5] Copper production erroneously reported from Lassen County in the years 1913 and 1914, on account of shipping point being Doyle, while producing copper mines were located in Plumas County.

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Year	Gold, value	Silver, value	Copper		Brick	
			Pounds	Value	M	Value
1893	[1]$150,696	$314				
1894	107,791	180				
1895	162,323					
1896	104,339	1,240				
1897	85,963					
1898	94,884	50			400	$2,800
1899	73,758	292			439	3,070
1900	104,134	3,833	500,000	$77,500	500	3,000
1901	82,749	2,600	108,430	17,077	500	3,000
1902	35,128	3	18,600	2,139	230	1,840
1903	93,070	3	36,000	4,680	216	972
1904	75,303	25	10,300	1,313	750	3,750
1905	50,867	10,014				
1906	22,390	508				
1907	13,303	506	1,895	379	1,250	12,500
1908	45,107	1,264	113,293	15,454	250	2,250
1909	14,716	403	5,000	635		
1910	10,076	850	336,667	42,876	740	3,700
1911	1,958	77	14,608	1,826	270	1,350
1912	9,162	1,162	248,129	40,941	300	1,500
1913	14,489	1,617	532,403	82,522	315	1,650
1914	4,506	36	35,359	4,703		
1915	11,214	2,126	40,294	7,051	200	1,400
1916	10,306	1,772	124,286	30,574		
1917	18,914	489	372,123	101,590		
1918	7,583	4,206	245,519	60,643		
1919	17,705	1,700	175,405	32,625		
1920	6,382	1,488	89,846	16,532		
1921	1,053	27				
1922	1,594	3,500				
1923	12,074	541				
1924	3,208	176	34,467	4,515		
1925	2,366	82				
1926	1,708	22				
1927	4,181	38				
1928	3,580	144	14,171	2,031		
1929	1,474	475	19,254	3,389		
1930	1,062	70	98	13		
1931	2,405	11				
1932	9,230	52				
1933	8,962	712	496	32		
1934	13,165	69				
1935	21,410	83				
1936	23,485	180				
1937	13,615	110	2,007	243		
1938	9,485	56				
1939	30,135	181				
1940	49,000	340				
1941	52,395	335				
Totals	$1,692,403	$44,962	3,078,650	$551,238	6,360	$42,782

[1] Madera County created March 11, 1893, from a portion of Fresno County. Between 80 per cent and 90 per cent of the gold and silver produced in Fresno County prior to 1893 was from that part now in Madera County.
[2] Includes crushed rock, rubble, rip-rap, sand, gravel.
[3] See under 'Unapportioned.'

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MADERA COUNTY, 1893[1]-1941

Granite		Miscellaneous stone[2], value	Miscellaneous and unapportioned		
Cubic feet	Value		Amount	Value	Substance
48,858	$31,494				
39,590	49,662				
48,628	73,525	$7,800			
39,030	37,215	1,249			
23,103	49,673	500			
47,433	36,000	2,500			
124,015	80,000			$65,000	Unapportioned, 1900-1909.
96,716	294,799	600			
105,845	78,041	4,000			
128,581	389,800	1,000			
113,627	98,083	500			
42,316	123,106				
65,472	176,416				
99,278	93,372				
140,086	123,668	2,140	2,279 lbs.	84	Lead.
142,622	111,380	5,836			
99,192	74,152	1,112			
99,900	74,190	800			
82,135	56,058	3,213	5,533 lbs.	249	Lead.
150,994	270,123	1,466			
	186,543	6,221	50 tons	1,000	Pumice.
	84,632	37,640		1,000	Other minerals.
128,865	172,191	7,915			
	114,400	1,525	221 lbs.	19	Lead.
	40,355	1,540			
	64,358	1,500			
	98,523				
	461,822	4,765			
	454,222	16,948			
	486,670			18,750	Other minerals.
	935,820	11,750			
	1,358,410	16,600			
	418,683	5,325			
	[3]	[3]		1,055,447	Granite paving blocks and miscellaneous stone.
[3]		[3]		508,740	Granite and miscellaneous stone.
[3]		[3]		1,022,072	Granite and miscellaneous stone.
[3]		[3]	4,933 lbs.	250	Lead.
				674,387	Granite and miscellaneous stone.
[3]		2,015		483,912	Other minerals.
[3]		[3]		288,739	Granite and miscellaneous stone.
[3]		[3]	5,442 lbs.	210	Lead.
				123,198	Granite, miscellaneous stone, volcanic ash.
[3]		53,590		197,320	Granite and volcanic ash.
[3]		54,871		230,280	Granite, lead, volcanic ash.
[3]		44,020		154,907	Granite, volcanic ash.
[3]		70,502		48,695	Granite, pumice, volcanic ash.
		2,875		17,500	Other minerals.
[3]		[3]		89,515	Granite, miscellaneous stone, volcanic ash.
[3]		22,549	2,860 lbs.	143	Lead.
				38,042	Granite, pumice, volcanic ash.
[3]				127,600	Granite, pumice, miscellaneous stone, volcanic ash, tungsten.
	[3]$7,197,386	[3]$394,867		$5,177,375	

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Year	Brick		Miscellaneous stone[1]	
	M	Value	Tons	Value
1888	1,600	$10,000		
1889	*2,000	12,000		
1890	*5,000	30,000		
1891	*10,000	60,000		
1892	*12,000	72,000		
1893	18,000	108,000		
1894	28,500	172,500		$16,550
1895	29,000	145,000		7,790
1896	15,000	85,000	7,849	8,260
1897	15,000	89,000	6,000	7,200
1898	15,500	66,000	1,710	1,800
1899	16,500	76,000	4,400	5,150
1900	25,000	200,000	3,000	2,500
1901	14,320	100,240	34,000	27,987
1902	14,600	97,700	149,450	105,350
1903	13,819	78,095	144,715	140,332
1904	20,500	132,000	216,576	170,995
1905	22,877	163,585	113,000	44,250
1906	23,900	199,300	54,000	53,000
1907	16,000	118,000	157,100	134,111
1908	10,000	50,000	111,686	66,700
1909	4,500	105,000	132,010	67,010
1910	22,497	99,185	112,000	74,700
1911	19,695	87,445	173,646	108,756
1912	18,000	88,200	5,300	3,000
1913	16,000	70,500	428,357	198,953
1914	15,000	55,000		490,137
1915	10,000	50,000		101,528
1916	[2]			74,000
1917	[2]			158,582
1918	[2]			89,455
1919	[2]			127,111
1920	[2]			208,302
1921	[2]			202,333
1922	[2]		[2]	[2]
1923	[2]			516,936
1924	[2]			356,035
1925	[2]			244,602
1926	[2]			413,712
1927	[2]			381,256
1928	[2]			309,218
1929	[2]		[2]	[2]
1930	[2]		[2]	[2]
1931	[2]		[3]	[2]
1932	[2]			189,937
1933	[2]		[2]	[2]
1934	[2]			136,127
1935	[2]			98,963
1936	[2]			[2]
1937				296,844
1938				[2]
1939				120,256
1940				[2]
1941				[2]
Totals	[2]434,808	$2,619,750		*$5,759,761

* Estimated.
1 Includes crushed rock, rubble, rip-rap, sand, gravel.
2 See under 'Unapportioned.'

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MARIN COUNTY, 1888-1941

Mineral water		Miscellaneous and unappropriated		
Gallons	Value	Amount	Value	Substance
		7,000 cu. ft.	$5,000	Granite.
		700 tons	1,400	Salt.
		150 tons	300	Salt.
52,000	$12,050			
47,500	5,075		42,000	Unapportioned, 1900-1909.
100,000	10,000			
328,740	36,500			
260,000	31,000			
60,000	9,000			
60,000	9,000			
60,000	9,000			
[2]			74,000	Brick and mineral water.
[2]			113,720	Brick and mineral water.
[2]			86,725	Brick, copper, gold, mineral water, silver.
[2]			101,863	Brick and mineral water.
[2]			127,443	Brick and mineral water.
[2]			116,443	Brick and mineral water.
[2]	[2]		403,099	Brick, mineral water, potash, miscellaneous stone.
			171,945	Brick, clay, mineral water.
			171,196	Brick, pottery clay, mineral water.
[2]			190,200	Brick, clay and mineral water.
[2]			113,841	Brick and mineral water.
[2]			145,748	Brick and mineral water.
[2]			140,350	Brick and mineral water.
[2]			470,002	Brick, mineral water, miscellaneous stone.
[2]			405,541	Brick, mineral water, miscellaneous stone.
			544,760	Brick, miscellaneous stone.
[2]			63,900	Brick and mineral water.
[2]			205,150	Brick, clay (pottery), mineral water, miscellaneous stone.
[2]			47,227	Brick and mineral water.
[2]			15,251	Brick, jasper, mineral water.
[2]			113,914	Brick, mineral water, miscellaneous stone.
			3,360	Other minerals.
[2]			189,843	Pottery clay, mineral water, miscellaneous stone.
[2]			13,500	Pottery clay, mineral water.
[2]			151,800	Mineral water, miscellaneous stone.
[2]			186,322	Pottery clay, mineral water, miscellaneous stone.
[3]962,240	$121,625		$4,415,843	

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MINERAL PRODUCTION OF MARIPOSA COUNTY, 1880-1941

Year	Gold, value	Silver, value	Copper		Miscellaneous and unapportioned		
			Pounds	Value	Amount	Value	Substance
1880	$150,017	$1,300					
1881	200,000	1,200					
1882	250,000	4,000					
1883	220,000	3,000					
1884	180,000						
1885	149,177	100					
1886	197,600						
1887	187,165	96					
1888	175,000	250					
1889	145,819	210					
1890	124,265	22					
1891	84,414						
1892	81,011	67					
1893	164,116	307					
1894	153,708	39					
1895	216,622	7					
1896	335,637	180					
1897	451,427	660					
1898	336,418	993					
1899	562,829	2,207			110 sq'r's	$600	Slate.
1900	157,663	13,853					
1901	504,928	4,787	191,622	$30,180	70,000 lbs.	3,080	Lead.
1902	631,478	3,880	104,700	11,940			
1903	542,355	3,353	61,627	6,808			
1904	429,771	2,839	11,500	1,466			
1905	386,380	5,231	12,541	1,956		25	Platinum.
1906	366,394	3,377					
1907	405,498	4,500			1,142 lbs.	60	Lead.
1908	439,862	4,732	29,124	2,958		36,560	Miscellaneous stone.
						62,430	Miscellaneous stone.
1909	396,465	2,729				8,431	Unapportioned, 1900-1909.
						21,501	Miscellaneous stone.
1910	317,580	2,364			800 tons	4,800	Barytes.
1911	172,532	1,390	14,641	1,830			
1912	160,541	6,796	284,587	46,957			
1913	171,034	7,430	416,031	64,485		3,130	Other minerals.
						15,366	Miscellaneous stone.
1914	131,458	677	277,472	36,904	2,000 tons	3,000	Barytes.
					100 cu. ft.	100	Marble.
						17,214	Miscellaneous stone.
1915	385,577	2,175	38,630	6,760		600	Other minerals.
					1,857 lbs.	128	Lead.
1916	401,718	2,680	162,318	39,930		4,143	Other minerals.
						39,372	Miscellaneous stone.
					1,075 lbs.	92	Lead.
1917	313,296	3,221	53,381	14,583		13,399	Other minerals.
						7,646	Miscellaneous stone.
1918	337,682	5,083	30,294	7,483		1,856	Chromite and lead.
						400	Miscellaneous stone.
1919	253,392	4,139	24,879	4,627		8	Other minerals.
						400	Miscellaneous stone.
1920	261,830	4,705	[1]			4,096	Barytes, copper, lead.
						400	Miscellaneous stone.
1921	331,295	5,251				5,655	Barytes and pyrites.
						400	Miscellaneous stone.
1922	218,571	3,301				4,960	Barytes, pyrites and miscellaneous stone.
1923	141,883	1,735				27,293	Barytes, pyrites and miscellaneous stone.
1924	182,099	1,608				3,000	Other minerals.
						48,000	Miscellaneous stone.
1925	192,810	1,758				3,500	Other minerals.
						436,794	Miscellaneous stone.
1926	182,313	1,518				130,804	Miscellaneous stone.
						5,089	Barytes, copper and pyrites.
						2,000	Granite.
1927	183,805	1,376				259,677	Miscellaneous stone.
						53,020	Barytes, pyrite, slate.

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MINERAL PRODUCTION OF MARIPOSA COUNTY, 1880-1941

Year	Gold, value	Silver, value	Copper		Miscellaneous and unapportioned		
			Pounds	Value	Amount	Value	Substance
1928	$120,568	$2,199	[1]		----------	$13,988	Granite.
					3,728 tons	21,776	Silica.
					----------	68,037	Miscellaneous stone.
					----------	55,597	Barite, copper.
1929	91,052	651	6,302	$1,109	----------	64,966	Miscellaneous stone.
					----------	86,239	Barite, silica.
1930	58,985	318	3,629	472	----------	15,133	Miscellaneous stone.
					----------	68,557	Barite, granite, lead.
1931	88,600	551	[1]		----------	33,410	Miscellaneous stone.
					----------	71,080	Barite, copper, granite, lead, silica.
1932	169,627	636	[1]		----------	131,625	Miscellaneous stone.
					----------	77,366	Barite, copper, granite, lead.
1933	254,663	1,112	[1]		----------	280,016	Miscellaneous stone.
					----------	39,327	Barite, copper, granite.
1934	517,443	3,214	1,771	142	----------	185,960	Miscellaneous stone.
					----------	101,149	Barite, granite, lead.
					1,438 lbs.	57	Lead.
1935	514,544	4,913	2,252	187	----------	178,266	Miscellaneous stone.
					----------	175,275	Barite, granite.
1936	863,485	4,756	2,350	216	----------	160,451	Miscellaneous stone.
					----------	101,110	Barite, lead, granite.
1937	1,025,010	6,084	11,927	1,443	----------	65,283	Miscellaneous stone.
					----------	172,954	Barite, granite, lead, mica, schist, pumice.
1938	1,081,815	5,154	4,328	424	----------	282,030	Miscellaneous stone.
					----------	219,438	Barite, granite.
1939	1,296,155	13,181	3,810	396	50,357 lbs.	2,367	Lead.
					----------	239,197	Miscellaneous stone.
					----------	204,480	Barite, granite.
1940	949,640	6,615	7,616	861	27,725 lbs.	1,386	Lead.
					----------	109,598	Miscellaneous stone.
					----------	156,186	Other minerals.
1941	1,141,070	7,183	5,908	697	7,183 lbs.	416	Lead.
					----------	45,363	Miscellaneous stone.
					----------	132,865	Barite, mica schist.
Totals	$21,138,092	$177,703	[1]1,763,240	$284,814	----------	$4,780,977	

[1] See under 'Unapportioned.'

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Year	Brick		Manganese ore	
	M	Value	Tons	Value
1880				
1881				
1882				
1895				
1896				
1898	258	$1,080		
1899	200	1,800		
1900	25	400		
1901	200	2,500		
1902	200	2,000		
1903	550	5,580		
1904	260	3,120		
1905	635	6,470		
1906	500	5,000		
1907	400	4,000		
1908	260	2,600		
1909	150	1,500		
1910				
1911	160	1,600		
1912				
1913				
1914				
1915			2,858	$23,036
1916			1,735	43,005
1917	[2]		1,541	40,515
1918			1,432	58,962
1919				
1920				
1921	[2]		[2]	
1922	[2]			
1923				
1924	550	7,125		
1925	[2]			
1926				
1927	[2]			
1928				
1929	[2]			
1930	[2]			
1931				
1932				
1933				
1934				
1935				
1936				
1937				
1938				
1939				
1940				
1941				
Totals	[2]4,348	$44,775	[2]7,566	$165,518

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] See under 'Unapportioned.'

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MENDOCINO COUNTY, 1880-1941

Mineral water		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Gallons	Value		Amount	Value	Substance
				$733	Gold.
				125	Silver.
				1,000	Gold.
			50 tons	150	Coal.
			450 tons	2,250	Bituminous rock.
17,470	$6,988				
24,875	8,048				
27,950	8,220				
28,575	7,898				
38,900	15,000				
40,000	12,000			75	Gold.
90,000	18,000			40	Gold.
				19	Gold.
40,000	9,800		50 flasks	1,825	Quicksilver (1906).
45,000	9,800				
45,000	9,800				
45,000	9,000	$1,200		18,000	Unapportioned, 1900-1909.
		500			
		300			
		9,450			
		560			
		1,500			
		8,275	300 tons	2,400	Magnesite.
				2,000	Other minerals.
		5,600		4,300	Brick, chromite, magnesite.
		5,000		226	Gold, platinum.
			555 tons	44,200	Chromite.
		7,000		7,214	Chromite, platinum.
		7,500		18,610	Chromite, manganese, natural gas, platinum.
				1,509	Gold.
		40,000		13	Silver.
				3,200	Brick, manganese, natural gas, platinum.
		18,762		1,800	Brick, natural gas, platinum.
		48,360		5,050	Coal, natural gas.
		49,680		3,963	Coal, natural gas, platinum, manganese.
		11,603		4,930	Brick, coal, natural gas.
		15,750		50	Other minerals.
		44,630		3,040	Brick and natural gas.
		40,420		20	Other minerals.
		55,925		3,075	Brick, natural gas.
		119,429		3,633	Brick, limestone, natural gas.
		70,755		1,952	Other minerals.
		101,619		50	Other minerals.
		35,010		155	Gold.
				118	Limestone, natural gas.
		14,301		50	Other minerals.
		10,389		40	Other minerals.
		35,521		75	Other minerals.
		[2]		35,596	Natural gas and miscellaneous stone.
		[2]		114,705	Natural gas and miscellaneous stone.
		[2]		46,378	Carbon dioxide, natural gas, miscellaneous stone.
		107,507		70	Gold.
				1,533	Carbon dioxide and natural gas.
		43,809		30,184	Carbon dioxide, coal, natural gas, platinum.
442,770	$114,554	$910,355		$364,356	

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MINERAL PRODUCTION OF MERCED COUNTY, 1880-1941

Year	Gold, value	Silver, value	Copper		Brick		Miscellaneous and unapportioned		
			Pounds	Value	M	Value	Amount	Value	Substance
1880	$17,515								
1881	1,500								
1882	10,000								
1883	10,000								
1884	6,500								
1885	10,000								
1886	7,000								
1887	10,767	$5							
1888	10,000								
1889	4,843								
1890	2,000	59							
1891	1,728	17							
1892	445								
1893									
1894	763								
1895	1,500								
1896	1,250								
1897									
1898									
1899									
1900	[1]								
1901	[1]		79,071	$12,453					
1902			14,400	1,656					
1903	[1]		6,000	780					
1904	[1]		8,900	1,135					
1905	[1]				600	$3,500			
1906					650	6,000			
1907	822	10			1,250	12,500			
1908	[2]182,970	[2]1,196	694	70	700	6,300	965 lbs.	$36	Lead.
1909	[2]228,492	[2]572			700	6,300		18,264	Unapportioned.
1910	[1]	[1]			700	6,300		64,764	Miscellaneous stone.
1911	[1]	[1]						49,548	Miscellaneous stone.
1912	[1]	[1]						45,000	Miscellaneous stone.
1913	[2]2,255	[2]92	19,240	2,982				30,000	Miscellenaous stone.
1914	[2]111,361	[2]340							
1915	[3]	[3]					690 lbs.	32	Lead.
								94,000	Other minerals.
1916	[3]	[3]					90 tons	720	Magnesite.
								80,810	Gold, platinum, silver.
1917	[3]	[3]						70,500	Miscellenaous stone.
								76,616	Gold, platinum, silver.
1918	41,089	254						32,500	Miscellaneous stone.
								1,006	Other minerals.
1919	[1]	[1]						40,350	Miscellaneous stone.
1920								24,800	Miscellaneous stone.
1921	3,163	87						30,300	Miscellaneous stone.
1922	[3]	[3]			[3]			88,110	Miscellaneous stone.
								69,469	Building tile, gold and silver.
1923	[3]	[3]			[3]			134,036	Miscellaneous stone.
								101,567	Brick, building tile, gold and silver.
1924	355	1	[3]		[3]			14,262	Miscellenaous stone.
								72,933	Clay and clay products.
								52	Copper and lead.
1925	289	1			[3]			36,646	Miscellaneous stone.
								43,326	Clay and clay products.
1926					[3]			156,486	Miscellaneous stone.
								36,179	Clay and clay products.
1927					[3]			189,537	Miscellaneous stone.
								177,336	Brick, hollow building tile, cement, clay (pottery).

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MINERAL PRODUCTION OF MERCED COUNTY, 1880-1941—Continued

Year	Gold, value	Silver, value	Copper		Brick		Miscellaneous and unapportioned		
			Pounds	Value	M	Value	Amount	Value	Substance
1928	$310	$2				[1]		$652,875	Other minerals.[6]
1929	84,188	186				[1]		1,026,124	Other minerals.[7]
1930	88,328	146				[1]		29,250	Miscellaneous stone.
								684,176	Other minerals.[8]
1931	173,551	226						534,012	Other minerals.[9]
1932	391,017	525						22,500	Miscellaneous stone.
								335,700	Other minerals.[10]
1933	451,023	610						13,875	Miscellaneous stone.
								300,506	Other minerals.[11]
1934	598,695	1,051						38,643	Miscellaneous stone.
								412,103	Cement, gypsum, platinum.
1935	1,302,369	2,761						14,750	Miscellaneous stone.
								384,895	Other minerals.
1936	1,462,160	3,433						20,755	Miscellaneous stone.
								522,960	Cement, copper, lead, platinum.
1937	1,858,815	4,274						36,157	Miscellaneous stone.
								635,880	Other minerals.
1938	2,090,340	3,788						139,637	Miscellaneous stone.
								633,736	Other minerals.
1939	1,781,325	3,219						827,352	Cement, miscellaneous stone, platinum.
1940	1,816,745	3,478						694,100	Cement, miscellaneous stone, platinum.
941	1,550,955	3,237						101,687	Miscellaneous stone.
								924,105	Other minerals.
Totals	$14,316,428	$29,570	128,305	$19,076	4,600	$40,900		$10,764,973	

[1] Included with Stanislaus County production.
[2] Includes Stanislaus County production.
[3] See under 'Unapportioned.'
[4] Dredge output included under Stanislaus County.
[6] Includes brick and hollow building tile, cement, clay (pottery), miscellaneous stone.
[7] Includes brick and hollow building tile, cement, miscellaneous stone.
[8] Includes brick and hollow building tile, clay (pottery), lead.
[9] Includes cement, copper, miscellaneous stone.
[10] Includes cement, platinum, volcanic ash.
[11] Includes cement, gypsum, platinum.

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MINERAL PRODUCTION OF MODOC COUNTY, 1880-1941

Year	Gold, value	Silver, value	Salt		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
			Tons	Value		Amount	Value	Substance
1880	$10,000							
1881	20,000	$1,500						
1882								
1883	50,000							
1884	60,000							
1885	60,000							
1886								
1909	[2]							
1910	5,438	75						
1911	19,875	363						
1912	27,893	494	50	$800				
1913	6,061	94	40	720				
1914	1,000	10	40	720				
1915	7,557	104	[3]		$300		$720	Other minerals.
1916	2,729	90	[3]		200		540	Other minerals.
1917					200			
1918	[3]	[3]	[3]		200		8,020	Gold, salt, silver.
1919	6,478	390	[3]		550		1,802	Other minerals.
1920	[3]	[3]	[3]		700		3,968	Gem material (Iceland Spar), gold, salt, silver.
1921			[3]		34,930		1,720	Gem material (Iceland Spar) and salt.
1922			[3]		[3]		16,018	Salt, miscellaneous stone.
1923	[3]	[3]	[3]		8,109		288	Gold, silver.
1924			[3]		[3]		1,300	Salt, miscellaneous stone.
1925							2,400	Salt, miscellaneous stone.
1926	158	3			36,450		1,380	Other minerals.
1927					61,651		600	Other minerals.
1928					29,440		1,000	Other minerals.
1929					30,346		650	Other minerals.
1930			[3]		[3]		16,250	Miscellaneous stone and salt.
1931	293	2			180,104		851	Other minerals.
1932	2,082	29	[3]		48,221		670	Gems and salt.
1933	1,346	13	[3]		164,614		774	Other minerals.
1934	6,323	67	[3]		41,150		577	Other minerals.
1935	84	8	[3]		51,550		790	Other minerals.
1936			[3]		30,249		2,057	Gems and salt.
1937	210	[3]	[3]		35,381		1,396	Gems and salt.
1938	[3]	[3]	[3]		4,329		1,567	Gems, gold, silver, salt, mineral water.
1939	245	[3]	[3]		17,449		5,961	Copper, gems, mineral water, salt, pumice.
1940	245	[3]	[3]		79,564		13,230	Gems, pumice, salt.
1941					105,218		20,209	Gems, pumice, quicksilver.
Totals	[2]$288,017	$3,251	[2]130	$2,240	[2]$960,905		$104,738	

[1] Includes crushed rock, rubble, sand, gravel.
[2] Included under Lassen County production.
[3] See under 'Unapportioned.'

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MINERAL PRODUCTION OF MONO COUNTY, 1880-1941

Year	Gold, value	Silver, value	Lead		Lime		Miscellaneous and unapportioned		
			Pounds	Value	Barrels	Value	Amount	Value	Substance
1880	$2,407,236	$582,905							
1881	3,385,000	300,000							
1882	2,200,000	380,000							
1883	1,750,000	290,000							
1884	1,000,000	285,000							
1885	482,860	91,849							
1886	439,558	163,502							
1887	382,498	118,945							
1888	297,000	75,000							
1889	193,264	86,827							
1890	144,180	52,293							
1891	302,415	18,983							
1892	396,296	271,058							
1893	293,637	11,401							
1894	358,824	11,549	50,000	$1,500					
1895	552,690	84,910	94,400	2,926			800 cu. ft.	$8,000	Onyx.
1896	451,553	82,283	73,500	2,205	500	$2,000	3,000 cu. ft.	24,000	Onyx.
1897	520,101	72,491	32,000	1,088	1,200	4,800			
1898	446,017	66,667	75,000	2,737	3,000	4,000			
1899	697,069	47,547	28,000	1,190	1,200	3,750			
1900	670,200	75,921	50,000	2,000	1,100	4,000			
1901	493,355	25,091	29,000	1,160	2,000	3,000	1,938 lbs.	305	Copper.
1902	510,596	36,548	4,400	154	2,000	2,000			
1903	334,713	20,067	1,000	36	1,818	5,000	1,600 lbs.	208	Copper.
1904	268,390	2,955			215	850			
1905	308,884	11,240							
1906	338,698	13,151							
1907	383,971	29,797							
1908	413,946	26,134					7,100 gals.	5,575	Mineral water.
1909	354,909	37,792						106,772	Unapportioned, 1900-1909.
1910	435,724	9,391							
1911	261,232	35,508	37,000	1,665					
1912	377,518	70,602	23,936	1,077	4,961	3,721	8,179 lbs.	1,350	Copper.
1913	147,271	23,263			2,135	1,600	79,319 lbs.	12,294	Copper.
1914	7,000	10,000					1,000 lbs.	150	Salt.
1915	107,302	1,923						200	Other minerals.
1916	237,084	3,606						300	Other minerals.
1917	209,040	5,662	1,912	164				3,906	Copper, molybdenum salt.
				Totals	20,129	$34,721			
					Miscellaneous stone, value				
1918	31,252	22,727	1,318	94			160 lbs.	40	Copper.
								750	Other minerals.
1919	29,428	55,558	1,556	82			539 lbs.	100	Copper.
1920	144,746	34,369	85,014	6,801		$1,000	3,215 lbs.	592	Copper.
								750	Other minerals.
1921	37,754	15,160	42,962	1,933			2,940 lbs.	379	Copper.
								1,650	Onyx and salt.
1922	65,747	11,686	9,820	540			4,338 lbs.	586	Copper.
								8,304	Other minerals.
1923	34,661	3,120				10,000		45,010	Other minerals.
1924	49,651	6,472	32,458	2,597		19,044		48,927	Other minerals.
1925	5,503	1,590	22,488	1,957		29,250		146,300	Other minerals.
1926	20,204	121,404	20,906	1,672			2,628	368	Copper.
								66,200	Other minerals.
1927	3,686	21,822	4,830	304				76,375	Other minerals, clay, copper, pumice, salt, andalusite, miscellaneous stone.
1928	6,307	176,115						31,998	Clay (pottery), pumice, volcanic ash, salt, travertine.
1929	10,025	28,137	19,602	1,235		15,257	16,552 lbs.	2,913	Copper.
								161,263	Andalusite, clay (pottery), pumice, volcanic ash, salt.
1930	26,234	3,166				19,770	2,006 lbs.	216	Copper.
								99,553	Andalusite and pumice.
1931	125,342	5,372	137	5		48,259		23,945	Pumice and salt.
1932	26,333	5,292	33,401	1,002		64,942	3,970 lbs.	250	Copper.
								37,861	Andalusite and pumice.

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MINERAL PRODUCTION OF MONO COUNTY, 1880-1941—Continued

Year	Gold, value	Silver, value	Lead		Lime		Miscellaneous and unapportioned		
			Pounds	Value	Barrels	Value	Amount	Value	Substance
1933	$33,378	$1,004	5,537	$170	.....	$20,354	665 lbs.	$43	Copper.
							.....	26,198	Andalusite and pumice.
1934	56,092	20,205	7,487	277	.....	77,806	510 lbs.	41	Copper.
							.....	58,017	Gems (rutile), molybdenum ore, pumice, salt, andalusite.
1935	39,994	72,634	6,305	252	.....	.....	1,295 lbs.	107	Copper.
							.....	38,032	Miscellaneous stone.[1]
							.....	72,729	Unapportioned.
1936	64,120	329,245	16,805	773	.....	.....	6,748 lbs.	621	Copper.
							.....	18,452	Miscellaneous stone.[1]
							.....	85,640	Pumice, andalusite.
1937	182,105	488,347	12,938	763	.....	.....	13,216 lbs.	1,599	Copper.
							.....	87,253	Miscellaneous stone.[1]
							.....	44,858	Unapportioned.
1938	117,390	142,854	6,039	278	.....	.....	3,050 lbs.	299	Copper.
							.....	4,121	Miscellaneous stone.[1]
							.....	84,574	Andalusite, pottery clay, pumice, tungsten.
1939	221,795	59,243	.....	.....	.....	.....	.....	112,534	Miscellaneous stone.[1]
							.....	119,785	Andalusite, pumice, quicksilver, salt, tungsten.
1940	427,490	104,307	140,666	7,033	.....	.....	113,870 lbs.	12,868	Copper.
							.....	37,322	Miscellaneous stone.[1]
							.....	77,260	Pottery clay, pumice, salt, tungsten.
1941	332,675	21,606	14,400	821	.....	.....	960 lbs.	113	Copper.
							.....	16,809	Miscellaneous stone.[1]
							.....	162,523	Pumice, andalusite, tungsten.
Totals	$24,652,483	$5,293,267	984,817	$46,491	.....	$305,682	.....	$2,005,000	

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.

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Year	Gold, value	Silver, value	Brick		Diatomaceous earth		Lime		Limestone	
			M	Value	Tons	Value	Barrels	Value	Tons	Value
1889	$3,500									
1890	11,815									
1891										
1892										
1893										
1894	8,000									
1895										
1896										
1897									2,000	$2,000
1898			400	$2,400					2,049	1,640
1899			200	1,400					7,744	6,970
1900			200	1,600					8,000	10,800
1901	13,800								5,463	7,500
1902	6,860	$18					22,000	$13,200		
1903	8,920						26,000	23,400	6,516	9,000
1904	6,941		200	1,600			3,240	3,240	4,550	21,500
1905	4,000						10,000	10,000		
1906	625	3			80	$400	40,000	50,000		
1907	1,076	9					100,000	125,000		
1908	1,318	9	426	3,838			50,000	50,000		
1909	333	5	300	2,900	500	3,500	50,006	62,507	10,658	45,678
1910	[2]1,013	10	993	9,957	500	3,500	30,894	29,349	2,500	7,500
1911					850	5,950			2,000	6,000
1912	[3]7,647	67							6,000	8,000
1913	6,491	27			1,700	6,800			6,500	13,000
1914	4,000	20								
1915					[4]					
1916					[4]					
1917					[4]				[4]	
1918					[4]					
1919					[4]					
1920					[4]					
1921					[4]					
1922										
1923					[4]					
1924					[4]					
1925	998	3			[4]					
1926	706	3			[4]					
1927	500	2			[4]					

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MONTEREY COUNTY, 1889-1941

Mineral water		Glass sand		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Gallons	Value	Tons	Value		Amount	Value	Substance
				$1,500			
5,000	$1,000						
2,000	200						
21,000	1,050			14,025			
1,500	750			8,258			
20,000	4,000			2,775			
15,000	3,250	4,500	$15,750	8,869	200 tons	$1,000	Coal.
15,000	1,750	4,500	12,225	5,200			
55,000	1,250	5,989	4,967	3,167	61 tons	732	Asphaltum.
25,000	1,000	8,295	7,272		124 tons	1,488	Asphaltum.
5,000	1,000	9,257	8,127				
24,000	12,000	750	1,125				
120,000	12,000	11,065	8,178		4,800 tons	24,000	Coal.
		6,805	5,120	31,727	7 flasks	296	Quicksilver.
10,000	2,000	6,496	4,872	43,351	1 flask	49	Quicksilver.
						344,789	Unapportioned, 1900-1909.
					7 flasks	317	Quicksilver.
		7,594	5,890	47,487	700 tons	5,000	Feldspar
					200 tons	2,500	Fuller's earth.
				27,011	11,000 tons	4,950	Clay.
20,000	7,000	9,016	7,916	60,119	4,000 tons	6,000	Clay.
					320 tons	3,200	Coal.
						78,332	Other minerals.
20,000	7,000	9,141	9,192	12,556	35,000 tons	12,000	Clay.
					300 tons	2,700	Fuller's earth.
					5,992 tons	17,976	Coal.
						9,450	Other minerals.
26,000	7,900	9,210	7,633	39,202	700 tons	3,500	Feldspar
					450 tons	3,150	Fuller's earth.
8,200	2,050	"		32,799		50,137	Coal, feldspar, diatomaceous earth, quicksilver, silica.
5,900	590			58,623		50,659	Barytes, feldspar, diatomaceous earth, quicksilver, salt, silica.
					6,392 tons	23,468	Dolomite
		"		57,810		57,508	Barytes, diatomaceous earth, limestone, mineral water, quicksilver, salt, silica.
					4,900 tons	25,950	Dolomite.
		"		52,697	700 tons	3,800	Feldspar.
						37,240	Barytes, coal, diatomaceous earth, quicksilver, salt, silica.
		"		73,031	8,280 tons	29,120	Dolomite.
						43,353	Barytes, coal, feldspar, diatomaceous earth, salt, silica.
200	20	"		[5]84,056	5,755 tons	26,238	Dolomite.
						16,135	Barytes, coal, feldspar, diatomaceous earth, salt, silica (glass sand).
		"		[5]63,316	2,500 tons	8,750	Dolomite.
						98,089	Asbestos, coal, diatomaceous earth, mineral water, salt, glass sand.
"		"		[5]86,180		169,139	Asbestos, coal, dolomite, quicksilver, salt, glass sand.
"		"		[5]140,724		81,298	Asbestos, diatomaceous earth, dolomite, mineral water, quicksilver, salt, glass sand.
					238 tons	436	Clay (pottery).
"	"			239,847	1,240 tons	4,960	Dolomite.
						41,247	Diatomaceous earth, mineral water, quicksilver, salt, shale, building stone, silica (glass sand).
	"			409,423	414 tons	1,161	Clay (pottery).
						66,136	Diatomaceous earth, quicksilver, salt, shale, building stone, silica (glass sand).
	"			263,244	491 tons	1,164	Clay (pottery).
						94,876	Diatomaceous earth, dolomite, salt, sandstone (shale building stone), silica (glass sand).
	"			244,584	1,100 tons	550	Clay (pottery).
						105,413	Diatomaceous earth, dolomite, building stone (andesite, sandstone), quicksilver, salt.

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Year	Gold, value	Silver, value	Brick		Diatomaceous earth		Lime		Limestone	
			M	Value	Tons	Value	Barrels	Value	Tons	Value
1928					[4]					
1929	$263	1			[4]					
1930					[4]					
1931	148	1			[4]					
1932	794	1			[4]					
1933	195				[4]					
1934	517	1			[4]					
1935	297	1			[4]					
1936	[4]				[4]					
1937	1,960	3			[4]					
1938	2,135	3			[4]					
1939	[4]	[4]			[4]					
1940	[4]	[4]			[4]					
1941	595	5			[4]					
Totals	[4]$98,447	[4]$191	2,719	$23,695	[4]3,630	$20,150	332,140	$366,696	[4]63,980	$139,588

[1] Includes crushed rock, rubble, sand, gravel.
[2] Includes Monterey, San Luis Obispo and Santa Cruz Counties.
[3] Includes Los Angeles and San Luis Obispo Counties.
[4] See under 'Unapportioned.'
[5] Includes molding, building, blast, filter, roofing sand.

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MONTEREY COUNTY, 1889-1941—Continued

Mineral water		Glass sand		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Gallons	Value	Tons	Value		Amount	Value	Substance
				$210,489	94,700 cu. ft.	$22,200	Sandstone (shale building stone).
						118,971	Clay (pottery), diatomite, dolomite, salt.
		"		213,082		11,900	Sandstone (shale building stone).
						129,612	Clay (pottery), diatomite, dolomite, glass sand, salt.
		"		233,971		30,500	Sandstone (shale building stone).
						188,503	Asbestos, clay (pottery), diatomite, dolomite, glass sand, paving blocks, quicksilver, salt.
		"		155,098		26,480	Sandstone (shale building stone).
						141,744	Clay (pottery), dolomite, glass sand, coal, silica.
		"		95,802		10,560	Sandstone (shale building stone).
						59,140	Coal, diatomite, natural gas, glass sand, salt.
		"		64,107		49,738	Clay (pottery), coal, diatomite, glass sand, dolomite, natural gas, quicksilver.
		"		101,652		88,732	Clay (pottery), coal, diatomite, dolomite, natural gas, quicksilver, salt, sandstone, silica (glass sand).
				61,261		4,370	Sandstone.
						66,760	Coal, diatomite, dolomite, jasper, natural gas, petroleum, quicksilver, salt.
				130,590	18 flasks	1,373	Quicksilver.
						55,787	Diatomite, dolomite, gems, gold, natural gas, salt, sandstone.
		"		206,700		53,988	Diatomite, dolomite, natural gas, quicksilver, salt, sandstone, glass sand.
		"		151,888		33,118	Diatomite, jasper, natural gas, quicksilver, salt, sandstone, glass sand.
				178,092		50,966	Diatomite, dolomite, gold, gypsum, natural gas, petroleum, quicksilver, salt, sandstone, silver.
				257,691		49,486	Diatomite, jasper, gold, gypsum, quicksilver, salt, sandstone, silver.
				360,162		58,610	Diatomite, dolomite, quicksilver, salt, sandstone.
[2]398,800	$65,810	[2]92,618	$98,261	$4,532,166		$2,811,794	

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MINERAL PRODUCTION OF

Year	Quicksilver		Mineral water	
	Flasks	Value	Gallons	Value
Manhattan Mine output, 1863 to 1876	3,594	$235,876	[2]	
1862	444	16,139		
1863	852	35,852		
1864	2,714	124,573		
1865	3,545	162,716		
1866	2,254	119,755		
1867	7,862	360,866		
1868	9,808	450,187		
1869	6,598	302,848		
1870	5,766	330,853		
1871	4,098	258,584		
1872	4,876	321,475		
1873	5,266	423,018		
1874	11,705	1,231,132		
1875	9,453	795,470		
1876	11,303	497,332		
1877	13,127	489,637		
1878	10,810	355,649		
1879	9,446	281,961		
1880	6,830	211,730		
1881	7,746	231,063		
1882	9,013	254,467		
1883	7,784	223,790		
1884	5,188	158,234		
1885	3,891	119,648		
1886	5,656	200,788		
1887	6,247	264,717		
1888	5,150	218,875		
1889	5,402	243,090		
1890	3,934	206,535		
1891	4,896	221,544		
1892	8,612	350,595		
1893	11,505	422,809		
1894	9,705	298,016	97,275	$41,231
1895	9,318	372,500	199,397	99,700
1896	11,411	403,031	218,680	81,335
1897	12,281	459,753	159,896	81,948
1898	12,368	472,972	169,261	63,919
1899	11,696	598,322	171,567	85,964
1900	8,724	403,500	171,000	72,200
1901	7,798	388,176	158,830	109,900
1902	7,142	304,474	236,229	97,048
1903	7,859	333,006	244,400	124,000
1904	[3]5,328	199,586	386,000	104,750
1905	4,853	171,910	279,400	89,500
1906	2,380	86,870	84,000	90,500
1907	2,500	95,400	240,000	103,600
1908	2,340	98,912	145,500	101,090
1909	1,625	80,535	123,072	96,279
1910	646	29,231	152,772	92,960
1911	140	6,441	141,540	86,530
1912	287	12,065	136,750	81,997
1913	287	11,546	151,520	75,548
1914	240	11,772	142,940	73,280
1915	507	45,224	133,387	73,535
1916	1,150	107,525	152,764	93,370
1917	834	78,320	126,124	70,058
1918	1,297	143,850	92,512	59,620
1919	644	58,140	76,860	60,395
1920	266	18,588	80,341	38,621
1921	35	1,659	72,364	55,760
1922	189	5,143	80,481	54,341
1923	157	9,759	69,639	55,757
1924	----------	[4]	73,608	53,391
1925	----------	----------	63,836	44,251
1926	----------	[4]	80,376	49,468
1927	776	88,425	81,864	50,116

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NAPA COUNTY, 1862-1941

Magnesite		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
				$93,000	Gold and silver.
				5,000	Gold and silver.
				16,000	Gold and silver.
				22,500	Gold and silver.
				50,000	Gold and silver.
				95,000	Gold and silver.
				57,046	Gold and silver.
1,500	$6,000			30,517	Gold and silver.
				23,689	Gold and silver.
1,440	10,240		51 tons	2,040	Infusorial earth.
2,200	17,000				
1,500	11,000				
1,143	13,671				
1,263	19,075				
1,180	17,130				
1,983	17,400				
700	11,622		8,919 tons	6,690	Limestone.
150	450	$500	7,086 tons	8,496	Limestone.
61	915	3,375	290,368 bbls.	435,552	Cement.
12	78	4,019			
		500			
		2,777			
		3,000			
		78,728			
		138,636		3,151,182	Unapportioned, 1900 to 1909.
		122,219		2,893,786	Unapportioned, 1910 to 1913.
		127,428			
55	550	172,646			
		243,759		8,000	Sandstone.
		130,316		756,380	Other minerals.
1,050	9,450	108,387		647,625	Cement, sandstone.
			715 tons	11,559	Chromite.
13,960	108,556	88,441	119,500 cu. ft.	5,500	Building stone (tuff).
				663,586	Other minerals.
			844 tons	22,020	Chromite.
40,329	387,930	110,039		752,706	Cement, clay, copper.
			667 tons	38,432	Chromite.
29,163	263,367	82,944		1,088,154	Cement, gold, silver.
10,112	86,752	70,016			
"		74,550		98,382	Magnesite, volcanic ash.
		111,100		26,720	Other minerals.
"		200,151		52,635	Building stone (red tuff), magnesite.
		215,356		70,720	Other minerals.
"		261,523		44,351	Magnesite, quicksilver.
				195	Gold.
		177,186		1,420	Silver.
				6,120	Other minerals.
				7,817	Gold.
		207,882		50,616	Silver.
				25,788	Other minerals.
				7,235	Gold.
		209,996		56,435	Silver.
				5,022	Copper, sandstone.

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Year	Quicksilver		Mineral water	
	Flasks	Value	Gallons	Value
1928	781	$85,477	70,291	$32,707
1929	2,081	246,747	86,141	90,703
1930	2,000	213,840	43,902	13,837
1931	1,937	168,710	106,062	49,665
1932	647	34,634	33,011	12,293
1933	842	47,059	15,237	9,940
1934	1,706	120,372	47,900	13,900
1935	1,109	60,649	38,000	3,650
1936	737	55,556	55,590	7,245
1937	329	26,051	77,531	15,683
1938	694	46,403	53,152	9,658
1939	691	71,823	94,750	12,650
1940	1,479	245,757	127,681	16,250
1941	1,999	337,726	69,026	19,519
Totals	357,190	$17,276,261	5,912,549	$2,919,842

[1] Includes crushed rock, macadam, rubble, paving blocks, sand, gravel.
[2] Napa Soda Springs have been bottling water for sale since 1860; but no segregated figures available for Napa County previous to 1894.
[3] Flasks of 76½ pounds to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.
[4] See under 'Unapportioned.'

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NAPA COUNTY, 1862-1941—Continued

Magnesite		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
		$179,078		$9,000	Other minerals.
			4,356 lbs.	767	Copper.
		216,420		17,781	Gold.
			144,180 fine oz.	76,848	Silver.
				556	Other minerals.
			9,275 lbs.	1,203	Copper.
				36,532	Gold.
		"	464 lbs.	23	Lead.
			266,386 fine oz.	102,559	Silver.
				164,989	Miscellaneous stone and sandstone.
			1,945 lbs.	177	Copper.
		145,920		14,766	Gold.
			60,009 fine oz.	17,403	Silver.
				200	Other minerals.
		115,982		6,724	Asbestos, pumice, sandstone.
		142,143		10,400	Pumice and sandstone.
		256,982		6,960	Asbestos, pumice, paving blocks, sandstone.
				3,894	Gold.
		"		8,470	Silver.
				121,403	Chromite, copper, pumice, miscellaneous stone.
		"		504,352	Chromite, copper, lead, gold, pumice, sandstone, silver, miscellaneous stone.
			1,156 lbs.	140	Copper.
		246,665		12,355	Gold.
				51,641	Silver.
				3,611	Other minerals.
			4,450 lbs.	436	Copper.
		"		64,260	Gold.
				95,895	Silver.
				421,311	Pumice, sandstone, miscellaneous stone.
			9,667 lbs.	1,005	Copper.
				115,710	Gold.
		"		197,696	Silver.
				316,011	Onyx, pumice, sandstone, miscellaneous stone.
		"		567,582	Onyx, copper, gold, silver, pumice, sandstone, miscellaneous stone.
			2,406 lbs.	284	Copper.
				12,250	Gold.
		"		25,686	Silver.
				623,719	Asbestos, chromite, pumice, sandstone, miscellaneous stone.
[1]107,801	$981,186	[1]$4,248,664		$14,952,605	

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Year	Copper		Gold, value	Granite	
	Pounds	Value		Cubic feet	Value
1880			$2,702,362		
1881			3,700,000		
1882			3,500,000		
1883			3,000,000		
1884			2,950,000		
1885			2,577,873		
1886			3,221,038		
1887			2,719,574		
1888			2,600,000		
1889			2,249,335		
1890			1,969,613		
1891			2,207,886		
1892			1,945,406		
1893			2,067,203		
1894	83,728	$7,535	1,830,155		
1895	33,255	3,325	1,789,816		
1896	28,200	2,820	2,380,756		
1897			1,885,251	1,100	$2,200
1898	30,000	3,000	2,017,628	2,000	1,500
1899	43,438	7,084	2,171,510	2,000	1,500
1900	150,980	20,472	1,812,036		
1901	39,588	6,235	2,121,054		
1902	26,500	3,975	2,142,740	1,000	3,000
1903	4,500	585	2,458,047	2,170	4,160
1904			3,130,304	2,335	5,395
1905			3,179,715	2,155	2,570
1906			2,658,420	9,525	9,300
1907	22,082	4,418	2,162,083	12,840	9,300
1908	30,166	4,104	2,297,963	700	2,100
1909			2,660,235	1,250	2,800
1910			2,533,483	2,225	3,215
1911	1,665	209	2,199,147	1,250	3,500
1912			2,081,958		
1913			2,918,733		
1914	39	5	3,301,948		
1915	1,817	318	3,466,722		
1916	3,487	858	3,669,878	100	100
1917	40,165	10,965	3,682,947		
1918	42,203	10,424	3,070,453		
1919	[2]		2,981,312	[2]	
1920	[2]		2,872,471	[2]	
1921			2,570,162	[2]	
1922	[2]		2,903,573	[2]	
1923	[2]		2,282,155	[2]	
1924	[2]		2,820,032	[2]	
1925	[2]		2,305,607	[2]	
1926	[2]		2,318,846	[2]	
1927	[2]		2,127,195	[2]	
1928	[2]		1,994,002	[2]	
1929	5,702	1,004	1,807,613	[2]	
1930	17,009	2,211	2,193,486		
1931	143,984	13,103	3,304,815		
1932	33,454	2,108	3,640,797		
1933	67,179	4,299	4,676,357		
1934	113,771	9,101	7,118,551	[2]	
1935	201,890	16,757	8,785,099		
1936	149,673	13,770	9,897,265	[2]	
1937	178,643	21,616	10,805,200	[2]	
1938	124,058	12,158	11,261,530	[2]	
1939	27,113	2,820	11,155,655	[2]	
1940	39,403	4,453	10,964,415	[2]	
1941	24,617	2,905	9,872,275		
Totals	1,708,309	$192,637	$221,691,685	40,650	$50,640

[1] Includes crushed rock, rubble, sand, gravel.
[2] See under 'Unapportioned.'

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NEVADA COUNTY, 1880-1941

Lead		Silver, value	Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Pounds	Value			Amount (tons)	Value	Substance
		$70,144				
		9,500				
		10,000				
		8,000				
		5,000				
		4,835				
		8,333				
		2,477				
		5,000				
		5,633				
		14,713				
		14,184				
		8,326				
		1,229				
		476		290	$5,800	Mineral paint.
		400		150	2,250	Mineral paint.
		8,584				
		8,116				
		19,476		50	1,000	Mineral paint.
				6,000	30,000	Pyrite.
		17,784		300	5,400	Mineral paint.
				5,400	28,620	Pyrite.
		66,841		2,925	17,550	Pyrite.
		18,122		78	429	Pyrite.
		6,124				
		3,252				
		9,555				
		32,523			20	Platinum.
		24,219				
		17,505				
663	$25	21,914	$1,678			
		24,926	1,874		400,000	Unapportioned, 1900-1909.
		16,506				
14,831	667	15,691				
1,785	80	22,830				
2,090	92	26,542	5,000			
145	6	27,000	2,108		60	Gems.
1,567	74	23,762	3,675		1,950	Other minerals.
1,036	71	35,741	1,225	981	12,795	Chromite.
					23,475	Manganese, platinum, tungsten.
				1,962	43,449	Chromite.
(2)		52,335	1,600		47,101	Asbestos, lead, platinum, tungsten concentrates.
(2)		72,557	1,400	3,328	116,993	Chromite.
					29,884	Asbestos, lead, manganese, platinum, tungsten concentrates.
(2)		68,731	1,976		12,034	Asbestos, barytes, chromite, copper, granite, lead, platinum.
(2)		58,476	6,528		17,531	Asbestos, barytes, copper, granite, lead.
		33,906	19,151		17,862	Asbestos, barytes, granite.
(2)		19,583	27,982		14,867	Barytes, copper, granite, lead, mineral paint.
1,290	90	30,534	42,309		15,682	Asbestos, barytes, copper, granite, mineral paint, platinum.
(2)		39,252	82,200		3,783	Copper, granite, lead.
(2)		32,155	10,333		4,782	Chromite, copper, granite, lead.
4,301	344	30,015	850,000		41,006	Barytes, copper, granite.
(2)		27,581	15,000		43,933	Barytes, copper, granite, lead.
(2)		20,798	4,000		5,086	Copper, granite, lead.
6,603	416	21,861	83,770		65,364	Baryte and granite.
18,164	908	23,316	76,850		23,462	Baryte and platinum.
198,671	7,351	43,611	123,024	149,865 lbs.	5,314	Zinc.
82,119	2,464	29,868	24,866		4,000	Other minerals.
72,380	2,678	56,109	24,400	34,478 lbs.	1,448	Zinc.
					2,100	Other minerals.
130,013	4,281	203,190	151,032		2,300	Other minerals.
355,526	14,221	374,010	2,661		2,400	
307,272	14,134	352,665	41,205		3,656	Include granite, platinum.
316,006	18,644	391,502	144,300		3,794	Include granite, platinum, mineral paint.
286,006	13,174	326,565	44,758		9,711	Include granite, platinum, barite.
39,921	1,876	278,864	21,446		7,895	Include granite, platinum, barite.
8,593	430	305,046	40,718		36,100	Barite, and granite.
10,234	583	316,256	6,157		57,000	Other minerals.
1,859,954	$83,149	3,824,049	$1,863,226		$1,593,826	

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Year	Petroleum		Natural gas, value	Brick	
	Barrels	Value		M	Value
1889					
1890					
1892					
1894					
1895					
1897	12,000	$12,000			
1898	60,000	60,000		300	$2,400
1899	108,077	108,077		200	1,600
1900	254,397	254,397			
1901	302,652	181,591			
1902	1,103,793	824,492			
1903	1,355,104	1,016,285		1,634	13,000
1904	1,470,000	1,144,542		1,500	9,000
1905	1,510,900	711,633		118	11,800
1906	2,388,000	1,194,000		1,365	13,500
1907	2,426,750	1,456,050		3,176	26,000
1908	3,376,689	2,532,517		4,050	20,450
1909	4,270,967	2,690,709		4,090	20,650
1910	5,044,001	3,177,721		2,950	31,000
1911	6,345,275	4,097,980		1,650	11,550
1912	6,704,421	4,478,553	$5,250	1,300	9,100
1913	9,485,362	6,867,402	9,612	2,100	14,000
1914	12,758,678	8,612,108	112,040	1,333	19,300
1915	12,715,457	6,510,314	81,753	1,280	16,000
1916	13,198,591	8,750,666	139,281	1,186	8,300
1917	14,680,801	14,724,843	490,511	and tile	11,000
1918	15,730,462	22,211,412	693,169	477	3,899
1919	14,458,722	26,893,223	837,439	[2]	
1920	15,462,741	33,059,340	862,446	[2]	
1921	22,929,466	45,996,509	1,312,704	2,994	47,720
1922	31,049,491	36,483,162	2,096,629	4,706	73,105
1923	46,474,921	40,897,930	3,914,661	8,499	103,428
1924	31,661,283	37,455,298	2,397,813	[2]	
1925	32,734,420	46,384,673	2,324,014	3,253	39,445
1926	37,989,349	59,225,395	3,556,194	6,272	72,489
1927	46,593,842	56,238,767	3,910,501	1,283	13,143
1928	37,100,943	34,607,932	4,695,769	[2]	
1929	25,861,815	25,504,922	2,602,382	774	7,743
1930	23,113,820	24,500,649	1,394,600	[2]	
1931	17,524,067	13,231,012	1,494,855	[2]	
1932	16,981,368	12,939,802	1,095,752	[2]	
1933	22,046,475	18,239,049	912,317	[2]	
1934	25,891,732	24,258,123	1,366,560	[2]	

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ORANGE COUNTY, 1889-1941

Clay		Stone industry,[1] value	Miscellaneous minerals		
Tons	Value		Amount	Value	Kind
				$6,262	Gold.
				10,943	Gold.
				9,470	Gold.
			1,500 tons	6,000	Coal.
			900 tons	4,000	Coal.
				144	Gold.
			800 tons	3,200	Coal.
			600 tons	2,400	Coal.
			25 tons	250	Gypsum.
			240 cu. ft.	120	Sandstone.
				2,407	Gold.
			500 tons	2,250	Coal.
			300 tons	1,500	Coal.
				4,000	Gold.
				250	Gold.
				150	Gold.
10,500	$14,581		408 cu. ft.	200	Sandstone.
7,740	12,900		500 cu. ft.	250	Sandstone.
			964 lbs.	193	Copper.
			24,472 lbs.	1,303	Lead.
			33,546 lbs.	2,000	Zinc.
9,000	18,600	$3,005	14,405 lbs.	534	Lead.
2,617	26,170	23,665		72,586	Unapportioned 1900-1909.
500	5,000	6,443			
2,000	3,200	855			
2,100	3,400	21,248	459 tons	688	Glass sand.
15,500	20,666	36,815			
		88,315			
		9,027	364 lbs.	17	Lead.
			4 lbs.	1	Copper.
		3,773		3,066	Other minerals.
[2]		2,699		2,573	Pottery clay, copper, lead.
3,649	4,650	1,560			
				18,499	Clay and clay products.
[2]		1,944		97,632	Lead and potash.
			455 lbs.	84	Copper.
				145	Gold.
[2]		80,988	15,932 lbs.	1,275	Lead.
				7,263	Silver.
				96,595	Brick, clay, potash.
		131,301		10,796	Pottery clay, copper, gold, lead and silver.
		270,022		3,168	Clay (pottery), gold, lead and silver.
				16,203	Clay (pottery), copper, gold, lead and silver.
		536,767		121,260	Brick and clay.
[2]		505,932		907	Copper, lead, silver.
				52	Gold.
13,431	42,562	307,112		995	Silver.
				5,637	Copper, lead, zinc.
				60	Gold.
13,150	38,989	317,767		414	Lead.
				967	Silver.
14,637	49,354	325,676		10,807	Copper, potash, zinc.
				9,600	Barite, quicksilver.
98,392	87,245	244,634		19,597	Brick and quicksilver.
				29	Gold.
			1,471 lbs.	93	Lead.
30,147	111,349	263,250	839 fine oz.	447	Silver.
				1,280	Copper and quicksilver.
18,224	78,366	252,501		109,174	Brick and mineral water.
21,900	28,430	275,367		105,494	Brick and mineral water.
9,892	33,217	87,592		25,882	Brick, mineral water, quicksilver.
				105	Gold.
13,486	49,762	46,340	2 fine oz.	1	Silver.
				16,007	Brick, mineral water, glass sand, quicksilver.
				572	Gold.
12,740	31,328	78,986	2 fine oz.	1	Silver.
				10,461	Brick and mineral water.

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Year	Petroleum		Natural gas, value	Brick	
	Barrels	Value		M	Value
1935	24,971,601	$22,422,526	$1,802,397	[2]	
1936	21,685,351	20,321,674	1,466,555	[2]	
1937	22,060,820	20,854,524	1,599,811	[2]	
1938	20,667,775	19,768,434	1,510,990	[2]	
1939	18,314,989	17,434,038	1,185,021	[2]	
1940	17,998,175	16,190,394	1,071,924	[2]	
1941	19,962,737	17,987,662	992,110	[2]	
Totals	708,838,280	$762,512,330	$45,926,060	[2]5€,490	$599,593

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] See under 'Unapportioned.'

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ANGE COUNTY, 1889-1941—Continued

Clay		Stone industry,[1] value	Miscellaneous minerals		
Tons	Value		Amount	Value	Kind
				$1,154	Gold.
				1,599	Lead.
19,276	$60,021	$45,311	39,981 lbs.	2,344	Zinc.
				11,113	Silver.
				14,169	Brick, copper, mineral water, glass sand.
20,519	62,364	256,744		25,582	Brick, copper, lead, zinc, gold, silver, mineral water, salt.
29,415	84,513	112,025		8,507	Brick, and salt.
				245	Gold.
22,522	89,954	201,444		411	Silver.
				29,574	Brick, copper, lead, quicksilver, salt, glass sand.
25,599	108,738	95,038		27,947	Brick, gold, lead, quicksilver, salt, glass sand, silver, zinc.
			1,235 lbs.	140	Copper.
				1,505	Gold.
45,555	151,005	122,331	38,571 lbs.	1,928	Lead.
				10,789	Silver.
			51,267 lbs.	3,230	Zinc.
				21,901	Brick, mineral water, quicksilver, salt, glass sand.
				630	Gold.
32,007	142,603	238,021	10,196 lbs.	581	Lead.
				3,446	Silver.
			31,979 lbs.	2,398	Zinc.
				32,024	Brick, copper, mineral water, salt, glass sand.
[2]494,498	$1,377,456	$4,994,498		$1,010,977	

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Year	Gold, value	Silver, value	Copper		Brick		Pottery clay†	
			Pounds	Value	M	Value	Tons	Value
1880	$838,133	$640						
1881	850,000	6,500						
1882	800,000							
1883	810,000							
1884	887,320	5						
1885	906,301							
1886	1,071,663	1,397						
1887	855,510	556						
1888	850,000	1,000						
1889	1,245,491	1,975						
1890	1,003,602	1,045						
1891	998,495	5,921						
1892	1,159,080	2,120						
1893	1,351,250	616						
1894	1,851,215	664					22,000	$27,500
1895	1,599,635	5,273					15,000	15,000
1896	1,674,844	6,690					10,000	10,000
1897	1,524,941	6,784					7,500	7,500
1898	1,488,022	5,670					12,000	12,000
1899	1,100,081	1,206					15,000	15,000
1900	986,155	12,058					15,000	15,000
1901	900,745	4,828	11,200	$1,764			15,000	15,000
1902	843,366	3,341	3,200	368			15,000	15,000
1903	570,571	1,116	4,000	520			15,000	15,000
1904	778,355	9,320	600,000	76,500			16,100	16,100
1905	597 793	8,041	367,250	57,291			20,000	10,000
1906	‹	‹	200,000	38,600			20,000	15,000
1907	482,772	3,338					20,000	20,000
1908	358,096	2,194			13,000	$46,300	13,000	11,500
1909	281,372	1,492			2,083	52,300	45,300	35,250
1910	257,191	1,157			600	23,438	44,000	27,000
1911	251,298	2,585	118,624	14,828	700	18,000	43,120	29,200
1912	367,383	4,791	78,170	12,898	900	21,250	56,000	41,300
1913	220,785	2,972	429	67	1,900	40,000	63,600	47,200
1914	600,000	4,500	453	60	2,000	40,000	63,700	49,000
1915	414,319	24,543	‹		2,000	40,000	49,126	37,536
1916	428,400	24,928	1,437,441	353,610	2,540	79,000	29,018	36,230
1917	538,686	13,885	710,601	193,994	‹		44,097	44,097
1918	230,190	22,432	837,527	206,879	and tile	81,408	29,348	29,348
1919	170,609	3,141			‹		‹	
1920	151,088	2,178			and tile	149,924	65,560	76,500

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PLACER COUNTY, 1880-1941

Lime and limestone		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Amount	Value		Amount	Value	Substance
		$67,200			
		56,620	25 tons	$1,000	Asbestos.
		44,216			
		39,412			
		29,833			
		61,525			
		115,669			
		102,847			
		156,402			
[2]1,500	$9,000	198,530		280	Platinum.
[4]4,000	4,000			1,968	Quartz.
		123,448		375	Platinum.
[2]15,533	8,737	116,746	2 ozs.	36	Platinum.
[2]11,699	11,950	71,130	0.66 ozs.	12	Platinum.
			50 tons	2,500	Asbestos.
[2]11,430	11,430				
[3]38,869	79,768	118,722	70 tons	3,500	Asbestos.
[2]1,727	1,710	178,460	50 tons	5,000	Asbestos.
				862,362	Unapportioned, 1901-1902.
[2]24,322	25,864	203,783	60 tons	6,000	Asbestos.
[2]10,000	12,100	242,773	200 tons	20,000	Asbestos.
			125 tons	500	Asbestos.
		218,951	300 tons	3,300	Magnesite.
			90 tons	584	Mineral paint.
[2]222,595	200,000	231,415	50 tons	500	Magnesite.
			1,000 tons	2,000	Glass sand.
		205,749	805 lbs.	35	Lead.
			2,000 tons	4,000	Quartz.
[2]202,575	202,575	203,593	835 lbs.	15	Lead.
[2]1,236	2,432	98,187	711 lbs.	33	Lead.
				346,810	Asbestos and copper.
			744 tons	11,956	Chromite.
		17,026		80,931	Granite.
				10,548	Lead, limestone, magnesite.
			4,287 tons	105,384	Chromite.
		10,727		30,392	Granite.
				92,624	Asbestos, brick, platinum, tile, gems, magnesite.
			4,963 tons	276,765	Chromite.
		4,266		30,882	Granite.
				21,360	Magnesite and silica.
			1,018 tons	24,000	Chromite.
		4,330		98,513	Clay and clay products.
				36,233	Granite.
				1,055	Other minerals.
			300 tons	7,985	Chromite.
		6,688		212,625	Granite.
				5,825	Other minerals.

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Year	Gold, value	Silver, value	Copper		Brick		Pottery clay†	
			Pounds	Value	M	Value	Tons	Value
1921	$132,468	$1,068	.....	.....	and tile	$144,508	76,665	$95,930
1922	119,673	952	.....	.....	and tile	118,797	79,531	111,166
1923	75,732	297	.....	.....	.....	.....	82,919	143,097
1924	108,757	534	.....	.....	and tile	186,053	97,670	146,508
1925	121,785	620	.....	.....	and tile	147,981	102,598	138,813
1926	82,921	346	.....	.....	and tile	150,591	104,250	147,241
1927	97,494	440	.....	.....	.....	.....	61,388	106,710
1928	71,959	338	[3]	.....	[3]	.....	110,353	163,644
1929	34,691	133	.....	.....	[3]	.....	118,704	158,531
1930	29,338	73	[3]	.....	[3]	.....	85,377	116,642
1931	72,409	271	[3]	.....	[3]	.....	78,501	122,515
1932	104,089	284	[3]	.....	[3]	.....	35,825	49,037
1933	167,774	475	[3]	.....	[3]	.....	40,658	59,261
1934	547,892	6,987	[3]	.....	[3]	.....	38,975	60,555
1935	925,309	13,614	3,178	$263	[2]	.....	49,508	76,141
1936	1,366,400	16,067	3,080	283	[2]	.....	72,817	103,457
1937	1,594,320	20,088	5,959	721	[2]	.....	70,960	107,138
1938	1,805,965	27,944	7,704	755	[2]	.....	60,708	85,337
1939	1,533,945	36,814	5,719	595	[2]	.....	65,322	91,081
1940	1,813,210	42,687	10,578	1,195	.....	.....	57,323	81,709
1941	1,441,755	40,125	9,383	1,107	[2]	.....	111,819	155,056
Totals	$44,542,643	$410,939	[4]4,414,496	$962,288	.....	$1,339,550	2,365,340	$2,991,830

† Figures for value of clay are for crude clay only. The annual value of clay products is several times greater, but is omitted because there is only one factory. Production began in 1875.

[1] Includes granite (prior to 1916), crushed rock, rubble, rip-rap, paving blocks, sand, gravel.
[2] Barrels of lime.
[3] Tons of limestone.
[4] See under 'Unapportioned.'
[5] Includes chromite, mineral paint, mineral water.
[6] Includes brick, building tile, chromite.
[7] Includes mineral paint, mineral water, silica (quartz).
[8] Includes chromite, copper, silica (quartz).

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PLACER COUNTY, 1880-1941—Continued

Lime and limestone		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Amount	Value		Amount	Value	Substance
		$21,490		$48,328	Granite.
				5,278	Chromite, mineral paint, silica.
		24,430		12,980	Granite.
			2,000 tons	5,500	Silica.
				12,477	Other minerals.[5]
		139,829		5,146	Granite.
			3,656 tons	10,040	Silica (quartz).
				120,372	Other minerals.[6]
		15,573		19,155	Granite.
				15,600	Other minerals.[7]
		117,990		14,929	Granite.
				8,295	Other minerals.[8]
		81,814	6,092 cu. ft.	11,969	Granite.
				6,000	Other minerals.
		40,357	8,590 cu. ft.	18,109	Granite.
			2,700 tons	8,100	Silica.
				89,014	Other minerals.
		23,096	12,370 cu. ft.	19,655	Granite.
				54,443	Brick and hollow building tile, copper, mineral paint, mineral water.
		9,469		20,385	Granite
				43,136	Brick and hollow building tile, mineral paint, silica.
		133,339	9,246 cu. ft.	15,841	Granite.
				28,484	Brick and hollow building tile, chromite, copper, mineral paint, silica.
		55,666		6,300	Granite.
				28,687	Brick and hollow building tile, chromite, copper, mineral paint, mineral water, silica.
		40,405	6,450 cu. ft.	22,625	Granite.
				23,808	Brick and hollow building tile, copper, mineral water.
		41,761		24,595	Brick, chromite, copper, granite, lead, mineral water.
		33,413		29,385	Brick, copper, granite, lead, mineral water, chromite.
		3,631		7,493	Brick, chromite, granite, lead, mineral paint, quartz.
		44,459	5,178 lbs.	238	Lead.
				23,961	Brick, granite, mineral paint, mineral water, platinum, quartz.
		[2]	10,432 lbs.	615	Lead.
				31,158	Brick, chromite, granite, mineral paint, platinum, miscellaneous stone, zircon.
		54,148	15,300 lbs.	704	Lead.
				45,189	Brick, chromite, granite, mineral water, platinum.
		20,880	26,490 lbs.	1,241	Lead.
				26,182	Brick, granite, mineral water, platinum.
		48,054	43,371 lbs.	2,169	Lead.
				34,460	Brick, granite, mineral water, platinum, quartz, zircon.
		20,873	43,573 lbs.	2,484	Lead.
				98,191	Brick, chromite, granite, mineral water, platinum, zircon.
		[3]$3,898,934		$3,580,609	

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Year	Copper		Gold, value	Silver, value
	Pounds	Value		
1880			$857,124	$181
1881			1,350,000	2,000
1882			1,250,000	
1883			950,000	
1884			900,000	
1885			840,308	
1886			834,452	62
1887			698,069	16
1888			650,000	250
1889			796,754	235
1890			490,664	811
1891			482,462	
1892			432,295	11,731
1893			362,488	14
1894			499,359	
1895			602,951	271
1896			462,527	83
1897			339,252	701
1898			369,609	
1899			381,151	15
1900			365,210	4,159
1901			401,287	2,508
1902			360,686	517
1903	1,900	$247	424,112	510
1904			270,439	464
1905	1,006	157	283,810	530
1906			229,350	1,055
1907			219,355	948
1908			254,737	3,560
1909			157,491	587
1910			187,207	1,038
1911			228,785	1,125
1912	6,963	1,149	193,237	957
1913	[1]19,533	3,028	138,368	705
1914	[1]169,089	22,489	140,000	2,900
1915	3,164,496	553,787	167,440	19,025
1916	4,932,928	1,213,500	133,385	46,542
1917	7,462,870	2,037,364	131,955	74,461
1918	11,098,016	2,741,210	125,207	156,750
1919	10,193,951	1,896,075	83,600	175,846
1920	9,583,834	1,763,425	102,097	153,373
1921	11,584,216	1,494,364	127,148	171,090
1922	20,677,771	2,791,499	223,025	297,254
1923	22,883,609	3,363,891	174,871	243,870
1924	25,557,362	3,348,015	277,571	247,569
1925	26,950,029	3,826,904	249,540	294,254
1926	22,163,035	3,102,825	247,667	216,620
1927	21,055,425	3,758,261	321,016	179,108
1928	21,141,121	3,044,321	332,634	191,134
1929	25,253,603	4,444,634	391,683	271,712
1930	19,529,224	2,538,799	405,359	164,025
1931	12,473,960	1,135,130	308,443	93,472
1932	1,043,390	65,734	76,781	8,180
1933	[2]		70,000	402
1934	773	59	153,056	718
1935	1,654,113	137,291	207,856	34,402
1936	9,675,770	890,171	781,970	220,083
1937	9,879,959	1,195,475	911,610	227,296
1938	1,202,974	117,891	698,110	27,159
1939	8,051,386	837,344	1,266,335	132,077
1940	10,587,611	1,196,400	1,302,070	181,302
1941	7,510,414	886,229	1,268,960	128,437
Totals	[3]325,510,331	$48,407,668	$27,926,928	$3,994,194

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] See under 'Unapportioned.'
[3] Includes copper erroneously credited to Lassen County in those years, on account of shipping point being Doyle though the mines were located in Plumas County.

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PLUMAS COUNTY, 1880-1941

Manganese		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
1	$10				
2	40				
1	25				
1	30			$25	Platinum.
1	25	$5,000			
1	25				
3	75	2,000		75,575	Unapportioned, 1900-1909.
5	75	12,500	1,115 lbs.	50	Lead.
2	40		1,329 lbs.	60	Lead.
2	40	1,350	5,856 lbs.	264	Lead.
		1,700	5,621 lbs.	274	Lead.
		1,879	2,058 lbs.	80	Lead.
		5,431		32	Other minerals.
		1,988		3,920	Chromite, granite, molybdenum.
1,540	39,680	1,322	473 tons	9,800	Chromite.
				304	Gems, granite, silica.
1,544	61,754	7,750		23	Other minerals.
[2]		850		1,825	Limestone, manganese.
		62,109		2,658	Granite, lead, lime, platinum.
		[2]	2,961 lbs.	133	Lead.
			18 fine oz.	1,615	Platinum.
				4,111	Granite and miscellaneous stone.
				2,720	Granite, platinum, miscellaneous stone.
		780		750	Other minerals.
				2,950	Chromite, granite.
				30,810	Chromite, granite, manganese ore, miscellaneous stone.
				5,516	Granite, lead, manganese ore, platinum.
				2,338	Granite, lead, lime.
		28,124		2,914	Granite, lead, manganese.
		80,420		3,520	Granite, lead, manganese.
		106,900	491 lbs.	25	Lead.
				4,792	Granite and manganese.
		20,250		2,001	Granite and lead.
		20,000		10,617	Barytes, granite, platinum.
		51,125		9,623	Barytes, copper, granite, lead.
		[2]	1,111 lbs.	110	Lead.
		[2]		27,200	Barite, granite, miscellaneous stone.
		15,054	1,331 lbs.	53	Lead.
				19,860	Barite, and granite.
		7,495		24,058	Barite, lead, granite, platinum.
		20,317		259	Granite, and lead.
		27,159	2,276 lbs.	105	Lead.
				150	Other minerals.
		29,778		422	Other minerals.
		59,427	88,162 lbs.	4,408	Lead.
				1	Other minerals.
		71,203	72,104 lbs.	4,110	Lead.
				11,962	Chromite, manganese ore, platinum.
[2]2,103	$101,819	[2]$641,911		$271,993	

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Year	Gold, value	Silver, value	Platinum		Brick	
			Ounces	Value	M	Value
1880	$342,514					
1881	425,000	$1,000				
1882	400,000					
1883	480,000					
1884	270,000					
1885	353,522					
1886	280,000					
1887	158,526	176				
1888	150,000					
1889	210,075					
1890	193,585					
1891	142,830	4				
1892	121,900					
1893	90,091					
1894	70,326				11,250	$56,250
1895	145,873				13,125	65,625
1896	133,050				8,700	44,200
1897	93,050				3,100	16,700
1898	57,301				11,000	44,000
1899	115,906				15,600	93,600
1900	176,007	[2]473			8,900	53,400
1901	229,034	[2]253			12,236	62,180
1902	425,894	330			10,492	75,198
1903	335,646	234			15,000	120,000
1904	419,287	75			4,500	20,000
1905	668,382	206	40	$700	18,000	130,000
1906	986,624	3,640	11	200	12,000	108,000
1907	790,973	2,034			16,078	128,624
1908	1,166,055	1,621			7,936	63,491
1909	1,669,814	2,856				
1910	1,396,874	4,606				
1911	1,812,826	3,047			13,017	76,571
1912	1,712,587	3,544			26,073	161,535
1913	2,503,633	3,406			22,535	144,191
1914	2,164,491	3,481	223	7,108	22,862	160,923
1915	2,131,813	3,151	196	6,217	9,920	82,973
1916	1,833,855	3,578	195	8,892	8,924	91,615
1917	1,919,581	4,487	157	12,453	and tile	122,886
1918	1,694,724	4,637	[3]			79,312
1919	1,714,193	5,276	[3]		[3]	
1920	1,575,033	4,534	[3]			248,433
1921	1,690,662	5,254	[3]			216,402
1922	1,350,749	3,392				259,293
1923	1,331,227	2,566	[3]			327,656
1924	1,150,687	1,753				290,213
1925	1,302,320	1,920				354,078
1926	1,304,046	1,627				388,697
1927	1,211,278	1,472				295,677
1928	1,558,173	1,779	[3]			295,669
1929	1,492,083	1,583	[3]			228,312
1930	1,724,712	1,313	[3]			195,867
1931	1,871,195	1,056	144	5,876		151,539
1932	2,100,250	1,120	[3]			85,187
1933	2,996,669	1,768	[3]			75,081
1934	3,555,468	2,940	[3]			40,572

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SACRAMENTO COUNTY, 1880-1941

Granite		Natural gas		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Cubic feet	Value	M cubic feet	Value		Amount	Value	Substance
75,000	[4]$35,000						
85,000	[4]45,000						
				$12,108			
207,845	62,339			28,074		$1,500	Pottery clay.
4,840	4,000	15,000	$12,000	14,137			
1,524	1,145	12,000	10,000	13,105			
2,137	3,139	11,750	11,750	14,157			
2,635	2,882			7,926		316	Copper.
288	136	38,550	31,200	19,380			
20,471	2,222	31,680	30,518	18,176			
5,164	4,458	39,200	39,200	22,103			
4,327	1,614	43,564	43,564	32,386			
10,905	1,779	60,225	52,874	18,141			
26,105	4,625	60,225	52,874	13,936			
44,151	44,151	55,000	55,000	151,477			
31,660	23,745	60,000	60,000	235,210		314,438	Unapportioned, 1900-1909.
68,684	59,947	49,203	49,203	164,592			
45,630	2,307	9,000	83,890	131,037			
		100,000	96,000	197,733			
		72,000	36,000	238,476			
		80,000	40,000	253,235			
		108,000	54,000	284,127			
		[3]		194,718	227 lbs.	16	Lead.
						46,000	Pottery, clay, natural gas.
		[3]		199,839		27,000	Other minerals.
					310 tons	410	Pottery clay.
		[3]		262,689		61,235	Natural gas, platinum, potash.
		[3]		276,732		113,000	Clay and clay products.
						61,395	Natural gas and platinum.
		[3]		180,563		57,591	Natural gas and platinum.
	39,469	[3]		386,911		56,196	Natural gas and platinum.
	51,500			412,667		111,991	Natural gas and platinum.
	30,740	[3]		649,939		93,907	Natural gas and platinum.
	11,150	[3]		639,811	1,750 tons	4,470	Clay (pottery).
						98,126	Natural gas, platinum.
	155,250	[3]		590,359		2,748	Clay (pottery).
						97,730	Natural gas, platinum.
	7,812	[3]		438,086	1,528 tons	2,310	Clay (pottery).
						101,374	Natural gas, platinum.
	33,600	[3]		754,206		52,683	Clay (pottery), natural gas, platinum.
	19,658	[3]		453,775		60,591	Clay (pottery), natural gas, platinum.
	6,726	[3]		463,930		54,713	Clay (pottery), lead, natural gas, platinum.
	7,751	[3]		346,195		27,330	Clay (pottery), natural gas, platinum.
	12,316	[3]		205,347		12,345	Clay (pottery), lead, natural gas.
		[3]		135,544		17,822	Clay (pottery, natural gas, platinum.
		[3]		82,602		16,643	Copper, lead, natural gas, platinum.
	[3]	[3]		233,294		45,483	Copper, lead, granite, natural gas, platinum, paving blocks.

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Year	Gold, value	Silver, value	Platinum		Brick	
			Ounces	Value	M	Value
1935	$3,983,985	$3,163	[3]			77,562
1936	3,660,125	3,283	[3]			116,453
1937	3,660,765	3,359	[3]			[3]
1938	4,973,640	4,031	[3]			[3]
1939	5,374,935	5,104	[3]			[3]
1940	5,538,295	7,076	[3]			[3]
1941	6,287,575	7,276	[3]			[3]
Totals	$89,679,914	$119,484	[2]1,026	$41,446		$5,655,855

[1] Includes crushed rock, rubble, rip-rap, gravel, paving blocks.
[2] Recalculated to 'commercial' from 'coining value' as originally published.
[3] See under 'Unapportioned.'
[4] State Prison use, value estimated, as none reported.

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SACRAMENTO COUNTY, 1880-1941—Continued

Granite		Natural gas		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Cubic feet	Value	M cubic feet	Value		Amount	Value	Substance
.....	.....	[2]	.....	242,837	.....	$29,216	Natural gas, platinum.
.....	.....	[2]	.....	449,373	3,141 lbs.	147	Lead.
.....	.....	[2]	.....	513,699	.....	25,304	Copper, natural gas, platinum.
.....	.....	[2]	.....	376,159	.....	112,866	Brick and hollow tile, natural gas, platinum.
.....	.....	[2]	.....	358,557	.....	113,657	Brick, granite, natural gas, paving blocks.
.....	.....	[2]	.....	280,780	.....	117,001	Brick, clay, granite, natural gas, platinum, paving blocks.
.....	.....	4,005,707	355,397	703,243	.....	102,683	Brick, clay, granite, natural gas, platinum.
					.....	130,510	Brick, clay, copper, lead, granite, petroleum, platinum, paving blocks.
.....	$674,461	[4]4,932,104	$1,113,470	$11,701,281	.....	$2,170,747	

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Year	Quicksilver		Lime		Gypsum	
	Flasks	Value	Barrels	Value	Tons	Value
1865	[1]17,455	$943,617				
1866	6,525	346,673				
1867	11,493	527,529				
1868	12,180	559,062				
1869	10,315	473,459				
1870	9,888	567,373				
1871	8,180	516,158				
1872	8,171	538,714				
1873	7,735	621,353				
1874	6,911	726,899				
1875	8,432	709,553				
1876	7,272 [2]2,000	319,968 139,000				
1877	6,316	235,587				
1878	5,138	169,040				
1879	4,425	132,048				
1880	3,209	99,479				
1881	2,775	82,778				
1882	1,953	55,123				
1883	1,606	46,173				
1884	1,025	31,263				
1885	1,144	35,178				
1886	1,406	49,913				
1887	1,890	80,088				
1888	1,320	56,100				
1889	980	44,100				
1890	977	51,293				
1891	792	35,838				
1892	848	34,523				
1893	869	31,936				
1894	1,005	30,861	40,000	$44,000	762	$9,144
1895	1,100	36,000	41,000	41,000	750	8,250
1896	1,335	46,725	40,000	35,000	300	3,000
1897	3,605	135,185	25,000	18,500	300	2,000
1898	5,000	190,000			500	4,500
1899	4,780	245,000	16,600	18,675	100	700
1900	3,990	180,000	7,300	8,800		
1901	4,800	242,300				
1902	7,291	306,081				
1903	8,180	344,251				
1904	[3]8,480	314,000				
1905	7,764	279,651	15,000	15,000		
1906	7,203	262,909				
1907	7,675	292,878	8,453	8,453		
1908	9,600	405,792			2,000	8,000
1909	8,900	440,241			6,000	34,575
1910	10,800	488,700			12,000	50,000
1911	9,775	449,748			10,000	30,625
1912	9,743	409,596			8,000	32,000
1913	9,719	390,995			11,000	35,000
1914	6,633	325,349			7,000	21,000
1915	6,291	475,370				
1916	11,100	1,032,156				
1917	11,150	1,057,770				
1918	10,715	1,234,027				
1919	7,409	668,989				
1920	3,887	296,942				
1921	[4]					

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SAN BENITO COUNTY, 1865-1941

Mineral water		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Gallons	Value		Amount	Value	Substance

Year	Quicksilver		Lime		Gypsum	
	Flasks	Value	Barrels	Value	Tons	Value
1922	[6]					
1923	[6]					
1924	4,670	$320,758				
1925	6,085	486,797				
1926	[6]					
1927	4,380	485,409				
1928	3,800	452,345				
1929	[6]					
1930	[6]		[6]			
1931	4,120	349,619	[6]			
1932	594	31,036	[6]			
1933	711	38,765				
1934	746	52,699				
1935	791	55,015				
1936	640	50,271				
1937	1,756	146,524				
1938	[6]					
1939	3,860	360,567				
1940	6,164	1,062,539				
1941	6,254	1,077,693				
Totals	385,741	$23,811,371	[1]193,353	$189,428	58,712	$238,795

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] Production of New Idria Mine from 1858-1866; yearly details not obtainable, though New Idria began operation in 1850.
[3] Estimated output of Cerro Bonito, Monterey and Stayton mines, 1870-1877; yearly details concealed under heading of 'various mines' in early reports.
[4] Includes bituminous rock.
[5] Flasks of 76½ pounds previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.
[6] See under 'Unapportioned.'

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SAN BENITO COUNTY, 1865-1941—Continued

Mineral water		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Gallons	Value		Amount	Value	Substance
"		$259,805	6,650 tons	$30,100	Dolomite.
				1,504,343	Asbestos, cement, magnesite, mineral water, quicksilver.
"		424,854		1,853,049	Asbestos, cement, dolomite, magnesite, mineral water, quicksilver.
"		269,369		1,554,476	Asbestos, cement, coal, dolomite, magnesite, mineral water.
[2]		351,363		1,779,236	Asbestos, cement, dolomite, magnesite, mineral water.
		328,460		2,072,390	Antimony, asbestos, cement, dolomite, magnesite, mineral water, quicksilver.
		371,050		1,045,395	Antimony, asbestos, cement, mineral water, pyrite.
"		"		1,202,373	Cement, magnesite, mineral water, pyrite, miscellaneous stone.
		"		1,908,462	Cement, magnesite, quicksilver, miscellaneous stone.
		"		1,389,490	Cement, lime, magnesite, quicksilver, miscellaneous stone.
		"		304,665	Bentonite, gems (benitoite), lime, limestone, miscellaneous stone.
		142,638		26,250	Bentonite, limestone.
		"		208,714	Other minerals.
		"		214,158	Bentonite and miscellaneous stone.
		"		187,239	Bentonite, miscellaneous stone.
		"		298,541	Bentonite, coal, miscellaneous stone.
		"		357,986	Bentonite, coal, dolomite, miscellaneous stone.
		"		527,192	Bentonite, coal, dolomite, quicksilver, miscellaneous stone.
"		"		186,526	Bentonite, dolomite, mineral water, miscellaneous stone.
		"		338,957	Dolomite, gems, miscellaneous stone.
		"		910,512	Antimony, cement, dolomite, miscellaneous stone.
[3]128,720	$25,415	[3]$4,259,735		$20,902,591	

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Year	Gold, value	Silver, value	Brick		Gems, value	Granite, value	Mineral water	
			M	Value			Gallons	Value
1880	$81,558							
1881	60,000							
1882	100,000							
1883	50,000	$5,000						
1884	65,000	5,000						
1885	95,125	2,000						
1886	140,450	78,758						
1887	66,900	198,537						
1888	160,000	192,000						
1889	275,440	25,740						
1890	453,800	100						
1891	467,000							
1892	396,518	2,051						
1893	105,860							
1894	266,409	190						
1895	344,308	600					48,000	$11,500
1896	560,578	40					45,000	35,000
1897	592,328						25,000	5,000
1898	673,196	300	672	$2,688		$4,875	4,320	3,000
1899	333,650		860	4,300		8,150	12,000	6,000
1900	335,937	[2]9,500	734	3,261	$500	9,900	6,500	3,250
1901	413,320	[2]2,800	1,158	5,791	20,000	22,400	6,000	3,000
1902	338,877	1,994	688	3,440	150,000	13,175	5,158	1,248
1903	461,516	1,444	2,150	11,150	100,000	16,308	6,000	3,000
1904	334,697	100	3,824	23,700	136,000	7,851		
1905	109,712	100	3,190	28,350	66,000	10,250		
1906	[3]		3,950	34,900	284,500	10,250		
1907	7,455	35	4,474	36,430	206,336	23,650	2,000	2,000
1908	6,920	86	2,112	16,719	121,500	10,000	9,810	11,772
1909	12,812	1,721	5,844	38,946	125,000		10,210	12,022
1910	[4]		8,813	62,647	110,300		40,550	30,110
1911	[4]		9,500	68,000	25,000		60,090	87,060
1912			10,500	80,000	12,500		52,060	17,218
1913			9,384	68,400	7,465		41,500	15,225
1914			5,457	56,392	1,150		8,865	911
1915	1,364	9	1,260	21,025	2,465		10,350	1,035
1916			4,001	36,842	2,710	[3]	[3]	
1917		[3]	and tile	21,423	[3]	[3]	[3]	
1918				29,080		[3]	[3]	
1919	1,470	12		[3]	[3]	15,215	[3]	
1920				87,612	2,100	7,838		
1921	[3]	[3]		[3]	1,405	22,444	70,924	9,161
1922	[3]	[3]			400	35,673	71,781	9,291

[1] Includes crushed rock, rubble, rip-rap, sand, gravel, paving blocks, grinding-mill pebbles.
[2] Recalculated to 'commercial' from 'coining value' as originally published.
[3] See under 'Unapportioned.'
[4] Included under Imperial County production.

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AN DIEGO COUNTY, 1880-1941

Salt		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
700	$5,000	$49,374	50 tons	$2,250	Asbestos.
700	5,000	25,000			
600	4,800	3,573			
650	5,850	23,390			
600	5,000	5,359			
600	5,000	18,198	31,000 lbs.	1,317	Lead.
			124 tons	4,600	Lithia mica.
600	4,000	14,403	440 tons	11,000	Lithia mica.
1,060	9,620	6,887	1,100 tons	27,500	Lithia mica.
7,900	7,900	14,175	822 tons	31,880	Lithia mica.
		42,597	700 tons	27,300	Lithia mica.
		200,192	641 tons	25,000	Lithia mica.
		16,507	4,808 lbs.	750	Copper.
			25 tons	276	Lithia mica.
6,000	5,000	49,378			
			13,246 lbs.	2,659	Copper.
7,000	55,000	28,500	971 lbs.	52	Lead.
			4,000 cu. ft.	12,000	Marble.
7,000	60,000	37,122			
15,000	60,000	33,510		214,634	Unapportioned, 1900-1909.
8,000	24,000	147,817			
13,000	37,500	201,488			
12,450	31,350	164,115	403 tons	500	Pottery clay.
20,500	51,750	170,014	838 tons	2,840	Pottery clay.
15,300	46,200	210,250	30 lbs.	4	Copper.
				1,365	Other minerals.
17,616	19,616	163,723	3,008 lbs.	526	Copper.
			23 lbs.	1	Lead.
			2,150 tons	175,804	Potash.
[3]		163,925	16,806 lbs.	4,134	Copper.
				13,140	Granite, lithia, mineral water, salt.
			283 tons	613	Pottery clay.
4,500	9,750	125,855	153,349 lbs.	43,502	Copper.
			5,252 tons	1,492,123	Potash.
				21,055	Pottery clay, gems, granite, lithia, mineral water, molybdenum, silica, silver.
			4,143 lbs.	1,023	Copper.
			700 tons	3,600	Feldspar.
10,631	61,717	184,158	10,392 tons	1,578,874	Potash.
				83,698	Granite, lithia, mineral water.
12,400	52,800	141,996		62,929	Clay and clay products.
				68,790	Copper, gems, lithia, mineral water, potash, silica.
			5,852 tons	57,522	Pottery clay.
1,5300	77,100	333,847	2,953 tons	17,715	Feldspar.
			7,557 tons	18,893	Silica (glass sand).
				191,602	Lithia, magnesium salts, mineral water, tantalum ore (columbite).
				92,600	Clay and clay products.
[3]		187,922	370 tons	725	Glass sand.
			1,850 tons	11,100	Feldspar.
				176,036	Gold, lithia, magnesium salts, marble, salt, silver.
			3,500 tons	29,500	Feldspar.
[3]		355,810		93,045	Clay and clay products.
				133,117	Fuller's earth, gold, lithia, mganesium salts, marble, salt, silica, silver.

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Year	Gold, value	Silver, value	Brick		Gems, value	Granite, value	Mineral water	
			M	Value			Gallons	Value
1923	$822	$144	[3]	[3]	$8,530	$40,000	59,795	$6,570
1924	4,830	97	----------	$232,113	1,925	94,006	107,097	8,642
1925	5,134	58	----------	119,165	9,413	108,703	81,374	21,137
1926	10,543	340	----------	230,484	4,000	45,327	156,380	23,259
1927	11,490	92	----------	165,170	3,500	63,142	109,685	51,559
1928	2,671	13	----------	101,515	1,700	41,499	71,845	3,592
1929	1,282	5	----------	146,221	2,210	28,884	[3]	----------
1930	2,234	10	----------	[3]	[3]	27,411	[3]	----------
1931	3,988	15	----------	79,633	[3]	10,192	[3]	----------
1932	5,573	32	----------	[3]	[3]	8,963	[3]	----------
1933	5,894	24	----------	[3]	[3]	10,097	[3]	----------
1934	25,514	187	----------	24,506	----------	11,167	[3]	----------
1935	10,367	65	----------	[3]	[3]	10,614	[3]	----------
1936	2,170	12	----------	[3]	[3]	28,000	[3]	----------
1937	2,100	14	----------	[3]	[3]	[3]	[3]	----------
1938	3,080	20	----------	[3]	[3]	[3]	[3]	----------
1939	14,630	166	----------	[3]	[3]	[3]	141,745	5,394
1940	16,975	128	----------	[3]	[3]	14,233	[3]	----------
1941	10,535	36	----------	[3]	[3]	15,391	[3]	----------
Totals	$7,452,032	$529,575	----------	[4]$1,839,903	[5]$1,406,609	[6]$776,208	[7]1,263,039	$386,87[illegible]

[1] Includes crushed rock, rubble, rip-rap, sand, gravel, paving blocks, grinding-mill pebbles.
[2] See under 'Unapportioned.'
[5] Includes bromine, lithia, magnesium chloride, salt, silica.
[6] Includes bromine, feldspar, magnesium chloride, mineral water, salt, silica, tube-mill pebbles.
[7] Includes brick and hollow building tile, bromine, feldspar, gems, magnesium chloride, mineral water, salt, silica (quartz), tube-mill pebbles.
[8] Includes bromine, gems, magnesium chloride, mineral water, salt, silica (quartz), tube-mill pebbles, paving blocks.
[9] Includes bentonite, brick and hollow building tile, bromine, clay (pottery), feldspar, gems, magnesium chloride, mineral water, salt, silica (quartz), tube-mill pebbles.
[10] Includes brick and hollow building tile, bromine, clay (pottery), feldspar, grinding-mill pebbles, magnesium chloride, mineral water, salt, silica (quartz).
[11] Includes bromine, clay (pottery), copper, feldspar, magnesium chloride, mineral water, salt, silica (quartz), tube-mill pebbles.
[12] Includes brick and hollow tile, bromine, pottery clay, granite, magnesium chloride, feldspar, salt, quartz.
[13] Includes brick and hollow tile, bromine, pottery clay, feldspar, gems, magnesium chloride, mineral water, salt.
[14] Includes brick and hollow tile, bromine, pottery clay, feldspar, gems, magnesium chloride, mineral water, salt, tube-mill pebbles, strontium.
[15] Includes brick and hollow tile, bromine, pottery clay, feldspar, gems, magnesium chloride, mineral water, salt, quartz, tungsten ore, tube-mill pebbles.

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SAN DIEGO COUNTY, 1880-1941—Continued

Salt		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
			5,603 tons	$100,977	Pottery clay.
		$343,959	6,100 tons	42,800	Feldspar.
				277,394	Brick and tile, fuller's earth, lead, magnesium, chloride, marble, salt, silica (quartz).
			12,783 tons	36,941	Pottery clay.
[2]		379,094	6,850 tons	47,950	Feldspar.
			109 tons	2,269	Lithia.
				205,252	Arsenic, fuller's earth, magnesium chloride, salt.
[2]		508,538	26,976 tons	66,427	Clay (pottery).
				291,182	Feldspar, fuller's earth, lime, magnesium chloride, salt, silica.
			30,187 tons	58,269	Clay (pottery).
[2]		529,640	7,000 tons	54,000	Feldspar.
				258,462	Bromine, copper, fuller's earth (filtering clay), lead, lithia, magnesium chloride, salt, zinc.
			16,190 tons	31,765	Clay (pottery).
[2]		889,642	7,396 tons	69,661	Fuller's earth.
				333,410	Bromine, feldspar, lithia, magnesium chloride, paving blocks, salt, heptane.
			33,396 tons	63,898	Clay (pottery).
[2]		1,284,741	12,836 tons	82,255	Feldspar.
			5,488 tons	47,740	Fuller's earth.
				140,629	Other minerals.[5]
			20,148 tons	34,020	Clay (pottery).
[2]		777,481	8,414 tons	78,944	Fuller's earth.
				378,240	Other minerals.[6]
			15,517 tons	25,785	Clay (pottery).
[2]		651,926	5,297 tons	55,696	Fuller's earth.
				539,985	Other minerals.[7]
			6,416 tons	69,010	Bentonite (fuller's earth).
			11,421 tons	15,487	Clay (pottery).
[2]		411,004	4,165 tons	54,620	Feldspar.
				208,506	Other minerals.[8]
[2]		187,671		172,937	Other minerals.[9]
[2]		374,796		230,070	Other minerals.[10]
[2]		212,884		213,008	Other minerals.[11]
			8,323 lbs.	333	Lead.
[2]		198,070		251,938	Other minerals.[9]
[2]		313,808		238,566	Other minerals.[10]
[2]		312,930		276,426	Other minerals.[12]
			7,023 lbs.	688	Copper.
[2]		285,223		246,711	Other minerals.[12]
[2]		358,625		248,946	Other minerals.[12]
[2]		550,997		262,874	Other minerals.[14]
[2]		1,128,780		257,192	Other minerals.[15]
[3]178,107	$643,953	$12,749,254		$10,818,857	

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MINERAL PRODUCTION OF SAN FRANCISCO COUNTY, 1894-1941

Year	Brick		Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
	M	Value		Amount	Value	Substance
1894			$296,864	20 tons	$25	Limestone.
1895			379,696			
1896	5,000	$37,500	285,167			
1897	4,500	28,500	86,217			
1898			129,595			
1899			275,604			
1900			58,400			
1901			156,947			
1902	25,800	238,800	156,300			
1903	33,403	294,326	508,460			
1904	39,509	367,911	332,220			
1905	32,585	310,685	114,357			
1906	7,208	58,289	106,250	8,500 tons	10,500	Glass sand.
1907	44,578	434,140	97,273	4,000 tons	60,000	Asphalt.
1908	41,837	345,155	95,259	1,500 tons	15,000	Asphalt.
1909	31,430	221,332	150,382	850 tons	9,800	Asphalt.
					30,000	Unapportioned, 1900-1909.
1910			108,126	1,000 tons	12,000	Asphaltum.
1911			119,636			
1912			151,147			
1913			110,551			
1914			119,889			
1915			128,270			
1916			76,437			
1917			107,957			
1918			16,463			
1919			65,541			
1920			77,553		2,800	Other minerals.
1921			41,562			
1922			[2]		65,409	Pumice, miscellaneous stone.
1923			117,341			
1924			150,258			
1925			131,158			
1926			112,193			
1927			62,701			
1928			67,430			
1929			75,245			
1930			23,482			
1931			[2]		20,500	Other minerals.[3]
1932			[2]		3,903	Other minerals.[3]
1933			[2]		7,734	Other minerals.[3]
1934			[2]		28,641	Other minerals.[3]
1935			[2]		892	Other minerals.[3]
1936			[2]		23,870	Other minerals.[3]
1937			[2]		41,825	Other minerals.[3]
1938			[2]		2,500	Gold.
					3	Silver.
					31,014	Other minerals.[3]
1939			[2]		7,840	Gold.
					12	Silver.
					44,817	Other minerals.[4]
1940			[2]		2,450	Gold.
					5	Silver.
					49,750	Other minerals.[3]
1941			[2]		665	Gold.
					2	Silver.
					55,520	Other minerals.[3]
Totals	265,850	$2,336,638	[2]$5,092,020		$527,452	

[1] Includes crushed rock, rubble, sand, gravel.
[2] See under 'Unapportioned.'
[3] Includes miscellaneous stone, and mineral water.
[4] Includes miscellaneous stone, mineral water, and platinum.

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MINERAL PRODUCTION OF SAN BERNARDINO COUNTY, 1880-1941

Year	Gold, value	Silver, value	Copper		Lead		Borates, value	Gypsum		Salt		Cement		Lime		Limestone		Brick		Marble		Miscellaneous stone,[1] value	Gems, value	Miscellaneous and unapportioned		
			Pounds	Value	Pounds	Value		Tons	Value	Tons	Value	Barrels	Value	Barrels	Value	Tons	Value	M	Value	Cubic feet	Value			Amount	Value	Substance
1880																										
1881	$9,000	$100,000																								
1882	20,000	150,000																								
1883	30,000	1,050,000																								
1884	32,000	2,550,000																								
1885	23,000	2,363,436																								
1886	56,464	1,204,750																								
1887	27,850	1,133,268																								
1888	25,000	1,200,000																								
1889	10,737	621,820																								
1890	17,335	795,465																								
1891	62,970	711,157																								
1892	47,037	67,072																								
1893	158,000	447,020																								
1894	130,420	148,243					$726,509			1,000	$3,000	8,000	$21,600	40,000	$32,000	5,000	$6,250					$31,622				
1895	[2]31,360	219,410					555,900			3,841	20,101	16,283	32,556	87,864	87,674	30,000	30,000					37,672				
1896	96,723	130,714					650,500			3,000	15,000	9,000	27,000	37,427	34,977	17,500	17,500			500	$3,000	28,476				
1897	100,373	54,407					1,080,000					18,000	66,000	12,000	12,000											
1898	261,512	32,000					1,120,000					50,000	150,000	50,000	35,000	6,600	6,600	2,000	$16,800	1,200	8,000	15,040				
1899	164,599	125,603	1,369,878	$232,339			1,106,000					60,000	180,000	16,000	16,100	16,440	14,810	1,000	8,000	4,500	625	11,275				
1900	247,949	172,759	1,920,000	297,600	10,000	$400	999,340					52,000	121,000	26,261	33,261	7,067	7,067					65,757	$20,000			
1901	399,693	57,164	50,000	7,875	500	20	898,130					71,800	159,842	38,783	43,028	54,210	76,710					166,777	20,000			
1902	394,936	58,972	338,480	41,008	59,340	2,076	2,198,600					96,000	273,600	76,582	65,832	48,986	51,578	60	1,800	6,005	15,600	192,400	11,600			
1903	381,197	59,199	60,400	7,852	14,000	504	495,000					100,000	157,000	39,923	28,692	52,813	64,613	100	8,000	38,000	41,600	266,961	10,000			
1904	595,828	13,025	169,477	17,270										25,000	21,500	28,421	42,575	2,500	17,500	31,116	53,400	158,686		4,000 cu. ft.	$2,000	Sandstone.
1905	473,893	19,595	52,603	8,206										17,024	14,740	27,387	51,395			40,100	40,000	147,197	65,900			
1906	354,830	33,765	514,031	99,207										20,910	17,146	19,837	35,990	1,800	13,500	7,200	25,000	38,476		10 tons	5,500	Tungsten.
1907	158,676	81,339	514,282	102,856	34,211	1,822								8,600	8,600	74,709	139,188	1,665	15,555	6,482	29,946	147,942				
1908	180,511	35,704	516,940	71,079	409,570	17,218		20,000	$70,000	90	650					104,236	97,466	1,050	7,350	150	500	231,242	200			
1909	40,071	12,570	316,300	40,418	310,200	13,254		12,500	43,000	3,500	14,000					22,197	41,395	1,709	11,966	50,000	125,900	173,777	200	300 tons	3,000	Pottery clay.
																								430 tons	4,300	Pottery clay.
																								108,000 gals.	4,035,856	Unapportioned, 1900-1909.
																								60 tons	25,000	Mineral water.
1910	55,093	10,164	5,412	689	134,312	5,972		31,519	70,357	3,000	9,000					224,610	157,715	1,910	11,460			95,126	1,120	100 tons	840	Barytes.
																								920 tons	1,000	Soapstone.
1911	127,367	35,542	666,489	83,311	161,338	7,260		20,584	66,505	3,600	13,800					245,102	177,080			135	405	167,213		350 tons	4,060	Pottery clay.
1912	293,900	49,962	1,937,185	319,636	94,852	4,268		21,000	67,000	3,600	12,600	[2]2,361,000	2,996,200			80,186	97,867	1,340	8,040			580,824	450	350 tons	350	Pottery clay.
																								200 tons	1,200	Mineral paint.
																								50 tons	550	Barytes.
1913	356,524	44,413	497,852	77,167	279,241	12,287		25,000	74,000	3,049	10,573	[3]		121,544	113,856	25,896	35,464	350	2,100			364,312	550	4,500 gals.	3,000	Mineral water.
																									1,391,304	Other minerals.
																								44,100 gals.	5,100	Mineral water.
1914	205,000	40,000	19,069	2,536	45,110	1,759		17,332	49,150	482	2,892	[3]		84,637	93,100	23,006	20,880	25	1,250			131,978		80 tons	561	Mineral paint.
																								140 tons	400	Glass sand.
																									1,240,575	Other minerals.
																								37,480 gals.	7,350	Mineral water.
1915	416,967	64,165	209,440	36,652	169,183	7,952		[3]		542	3,324	915,000	980,000	[3]		68,500	68,500	400	2,400	[4]		178,528		864 tons	840,947	Tungsten concentrates.
																								39,848 lbs.	4,941	Zinc.
																									62,316	Dolomite, gypsum, lime, manganese, marble, mineral paint, soapstone, and talc.
																								7,500 cu. ft.	2,500	Granite.
																								40,500 gals.	6,500	Mineral water.
1916	279,813	67,146	1,577,901	388,164	673,801	46,492		[3]		2,355	13,830	1,036,000	1,246,000	151,670	54,317	65,174	63,486	[3]				172,454	1,000	1,921 tons	3,915,434	Tungsten concentrates.
																								707,062 lbs.	94,746	Zinc.
																									217,265	Brick, dolomite, feldspar, gypsum, manganese, mineral paint, pumice, potash, talc, strontium.
																									2,350	Granite.
																									187,571	Lime and limestone.
																								235 tons	6,050	Manganese.
																								11,300 gals.	1,620	Mineral water.
1917	154,976	88,930	1,220,356	333,157	2,293,541	197,245		[3]				1,323,931	1,672,054	[3]		[3]		[3]				111,158		14,570 tons	2,049,120	Potash.
																								3,050 tons	37,000	Strontium.
																								1,943 tons	2,447,726	Tungsten concentrates.
																								38,735 lbs.	3,951	Zinc.
																									114,834	Brick, pottery clay, dolomite, feldspar, gems, gypsum, iron ore, mineral paint, salt, soda, talc.
																								270 tons	810	Dolomite.
																								601,500 gals.	60,150	Mineral water.
																								27,545 tons	3,428,443	Potash.
																								430 tons	4,210	Talc.
1918	29,225	88,712	1,580,998	390,507	667,978	47,426		[3]				1,027,635	1,453,962	[3]		10,852	13,323			[3]		48,451	[3]	2,900 tons	33,000	Strontium.
																								1,347 tons	1,911,966	Tungsten concentrates.
																								2,824 lbs.	257	Zinc.
																									122,348	Gems, granite, gypsum, iron ore, lime, magnesite, marble, mineral paint, salt.
																								800,060 gals.	32,006	Mineral water.
1919	39,769	427,717	256,933	47,790	105,796	5,607	[3]	19,613	50,154			1,078,943	1,717,998	[3]								183,388	[3]	21,171 tons	1,670,919	Potash.
																								3,601 tons	19,845	Talc.
																									443,492	Borax, pottery clay, dolomite, gems, lime, tungsten.
																								95 tons	890	Pottery clay.
1920	79,195	1,212,987	5,386	991	115,876	9,270	440,411	[3]		202	1,220	1,681,283	3,051,079	[3]		[3]		[3]				169,991	[3]	1,110,190 gals.	156,726	Mineral water.
																								15,435 tons	1,082,037	Potash.
																									336,551	Dolomite, gems, granite, gypsum, iron ore, lime, limestone, soda, talc.
																								683 tons	22,980	Calcium chloride.
1921	217,568	3,210,706	17,054	2,200	22,812	1,027	338,905	[3]		13,279	67,782	1,964,926	4,633,437	[3]		21,862	106,195					145,572	[3]	7,202 tons	211,067	Potash.
																								2,750 tons	43,375	Talc.
																									374,726	Pottery clay, dolomite, feldspar, gems, granite, gypsum, iron ore, lime, mineral water, pumice, soda.
1922	125,728	2,374,918	13,452	1,816	11,188	615	[3]	[3]		12,222	54,259	2,770,953	4,156,430	[3]		2,200	7,800					[2]			1,826,304	Borax, calcium chloride, fuller's earth, gems, gypsum, lime, mineral water, potash, soda, talc, miscellaneous stone.
1923	210,923	2,225,959	13,328	1,959	34,477	2,413	[3]	[3]		17,350	65,550	3,554,764	8,478,612	[3]		5,859	28,324					351,151		830 tons	12,630	Clay (pottery).
																								7,248 tons	123,216	Talc.
																									2,276,516	Borates, calcium chloride, gems, gypsum, lime, mineral water, potash, soda (trona), tungsten concentrates.
1924	187,573	1,531,598	17,667	2,314	31,668	2,533				29,699	99,791	4,354,119	7,571,370	[2]		14,375	45,137					355,946		7,234 tons	125,926	Talc.
																									2,720,243	Borates, calcium chloride, clay (pottery), fuller's earth, gypsum, lime, mineral water, petroleum, potash, soda (trona), tungsten, concentrates.
1925	157,374	1,378,392	6,249	888	61,480	5,349				28,319	101,085	5,079,281	8,828,044	17,495	124,446	13,239	27,569					395,048		1,540 tons	11,000	Clay (pottery).
																									3,150,468	Borates, calcium chloride, fuller's earth, mineral water, petroleum, potash, soda (trona), talc, tungsten, concentrates.
																								2,268 tons	10,605	Clay (pottery).
1926	106,875	551,644	171,232	23,972	195,536	15,643				22,522	85,463	5,135,840	9,273,627	13,680	96,310	11,226	49,504					404,681		2,806 tons	73,721	Soda (trona).
																								8,134 tons	142,280	Talc.
																									3,384,150	Borates, calcium chloride, fuller's earth, magnesite, mineral water, petroleum, potash, silica, tungsten concentrates, zinc.
																								1,798 tons	26,603	Fuller's earth.
1927	82,225	447,125	197,132	25,824	125,692	7,919						5,557,339	9,823,839	12,170	92,363	550,011	348,384					311,470		6,544 tons	49,400	Talc.
																									4,925,551	Borates, calcium chloride, clay (pottery), gems, mineral water, onyx, petroleum, potash, salt, silica, soda (trona), talc, tungsten concentrates.
																								2,190 tons	12,215	Clay (pottery).
1928	91,717	362,741	106,351	15,314	38,097	2,209				42,244	186,470	4,383,383	7,137,606	14,015	106,312	11,201	40,224					329,541	[2]		5,873,033	Antimony, borates, calcium chloride, fuller's earth, gems, mineral water, potash, soda, talc, and tungsten.
																								2,596 tons	15,874	Clay (pottery).
1929	44,984	189,756	81,846	14,405	53,532	3,373				24,949	114,796	3,576,005	4,603,301	10,145	77,340	15,526	40,753					629,111	1,540		5,474,419	Barite, borates, calcium chloride, manganese, mineral water, potash, volcanic ash, soda, talc, tungsten.
																								2,013 tons	14,916	Clay (pottery).
1930	59,442	178,496	40,622	5,281	45,653	2,283	[3]			[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]			406,912			9,989,971	Barites, borates, brick, calcium chloride, cement, fuller's earth, gems, lime, limestone, manganese ore, mineral water, potash, salt, soda, talc, tungsten.
																								3,035 tons	29,703	Bentonite.
1931	54,699	32,453	6,072	553	15,763	585	[3]			[3]		[3]				15,128	56,608	[3]				496,246	[3]	1,220 tons	5,333	Pottery clay.
																									9,299,304	Barite, borates, brick, calcium chloride, cement, gems, lime, manganese, mineral water, potash, pumice, iron ore, salt, silica (quartz), soda, talc, tungsten.
																								1,096 tons	6,491	Pottery clay.
1932	137,979	50,241	6,183	387	23,371	701	[3]			[3]		[3]		[3]		8,619	23,717	[3]				197,230	[3]		5,626,589	Barite, bentonite, borates, brick, calcium chloride, cement, gems, lime, mineral water, petroleum, potash, salt, soda, talc.
																								275 tons	2,515	Barite.
																								1,678 tons	16,042	Bentonite.
																								786 tons	5,687	Pottery clay.
1933	116,074	33,817	7,871	504	27,936	1,034	[3]					[3]		[3]		[3]		[3]				145,154		8,531 tons	85,262	Talc.
																									8,569,396	Borates, brick, calcium chloride, cement, fluorspar, lime, limestone, mineral water, petroleum, potash, volcanic ash, salt, soda, tungsten.
																								1,185 tons	7,844	Pottery clay.
1934	301,994	147,597	25,606	2,048	103,497	3,829	[3]			[3]		[3]		3,996	30,846	11,210	29,749	[3]				165,057			9,848,086	Barite, bentonite, borates, brick, calcium chloride, cement, fluorspar, gems, iron ore, manganese, mineral water, potash, salt, soda, talc, tungsten ore.
																								4,028 tons	37,695	Bentonite.
1935	279,020	114,736	19,553	1,623	123,776	4,951	[3]			[3]		[3]		[3]		[3]		[3]				199,292		2,623 tons	23,690	Pottery clay.
																									9,225,446	Borates, brick, calcium chloride, cement, iron ore, lime, limestone, onyx, mineral water, potash, salt, soda, talc, tungsten ore.
																								4,974 tons	68,062	Bentonite.
1936	140,105	182,343	10,110	930	115,621	5,318	[3]			[3]		[3]		[3]		19,046	52,046	[3]		[3]		299,357	[3]	9,781 tons	49,291	Pottery clay.
																									14,598,127	Borates, brick, calcium chloride, cement, gems, iron ore, lime, onyx, mineral water, petroleum, potash, salt, soda, talc, tungsten ore, zinc.
																								5,765 tons	50,252	Pottery clay.
1937	218,925	277,842	28,760	3,480	106,211	6,266	[3]			[3]		[3]		[3]		25,967	76,850	[3]		[3]		307,337		17,279 lbs.	1,123	Zinc.
																									15,070,255	Bentonite, borates, brick, calcium chloride, cement, fluorspar, granite, iron ore, lime, onyx, mineral water, salt, soda, petroleum, talc, tungsten ore.
																								8,504 tons	108,850	Bentonite.
1938	409,290	166,381	24,723	2,423	88,888	4,089	[3]			[3]		[3]		[3]		[3]		[3]		[3]		279,518		3,651 tons	26,249	Pottery clay.
																									15,756,066	Borates, brick, calcium chloride, cement, granite, iron ore, lithia, lime, limestone, onyx, mineral water, petroleum, potash, salt, serpentine, tungsten ore, zinc.
																								8,924 tons	44,008	Pottery clay.
1939	372,820	128,547	43,133	4,486	62,389	2,932	[3]			[3]		[3]		[3]		[3]		[3]		[3]		173,963			13,937,842	Antimony, bentonite, borates, brick, calcium chloride, cement, marble, iron ore, lime, limestone, lithia, mineral water, petroleum, potash, salt, soda, strontium, talc, tungsten ore, zinc.
																								4,733 tons	104,612	Bentonite.
																								7,043 tons	55,751	Pottery clay.
1940	515,410	103,338	50,913	5,753	31,375	1,569	[3]			[3]		[3]		[3]		[3]		[3]		[3]		174,414		21,955 tons	174,414	Talc.
																									14,599,420	Antimony, borates, brick, bromine, calcium chloride, cement, feldspar, granite, lime, limestone, lithia, manganese ore, marble, mineral water, petroleum, potash, quicksilver, salt, soda, strontium, tungsten ore.
																								10,451 tons	97,961	Bentonite.
																								8,243 tons	71,656	Pottery clay.
1941	593,145	115,835	111,077	13,107	78,991	4,502	[3]			[3]		[3]		[3]		30,603	83,806	[3]		[3]		306,804		26,681 tons	263,742	Talc.
																									15,371,603	Antimony, borates, brick, bromine, calcium chloride, cement, feldspar, granite, iron ore, lime, lithia, manganese ore, mineral paint, mineral water, potash, quicksilver, salt, quartz, soda, strontium, tungsten ore.
Totals	$11,093,663	$29,582,660	14,798,346	$2,435,577	6,976,802	$460,572	$10,609,295	[2]167,548	$490,166	[2]218,845	$895,186	[2]46,281,485	$78,812,157	[2]925,726	$2,239,440	[2]1,984,198	$2,250,899	[2]15,909	$125,721	[2]185,388	$343,076	$9,990,527	[2]$131,660		$200,161,023	

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] Combined annual production 1910, 1911, 1912.
[3] See under 'Unapportioned.'

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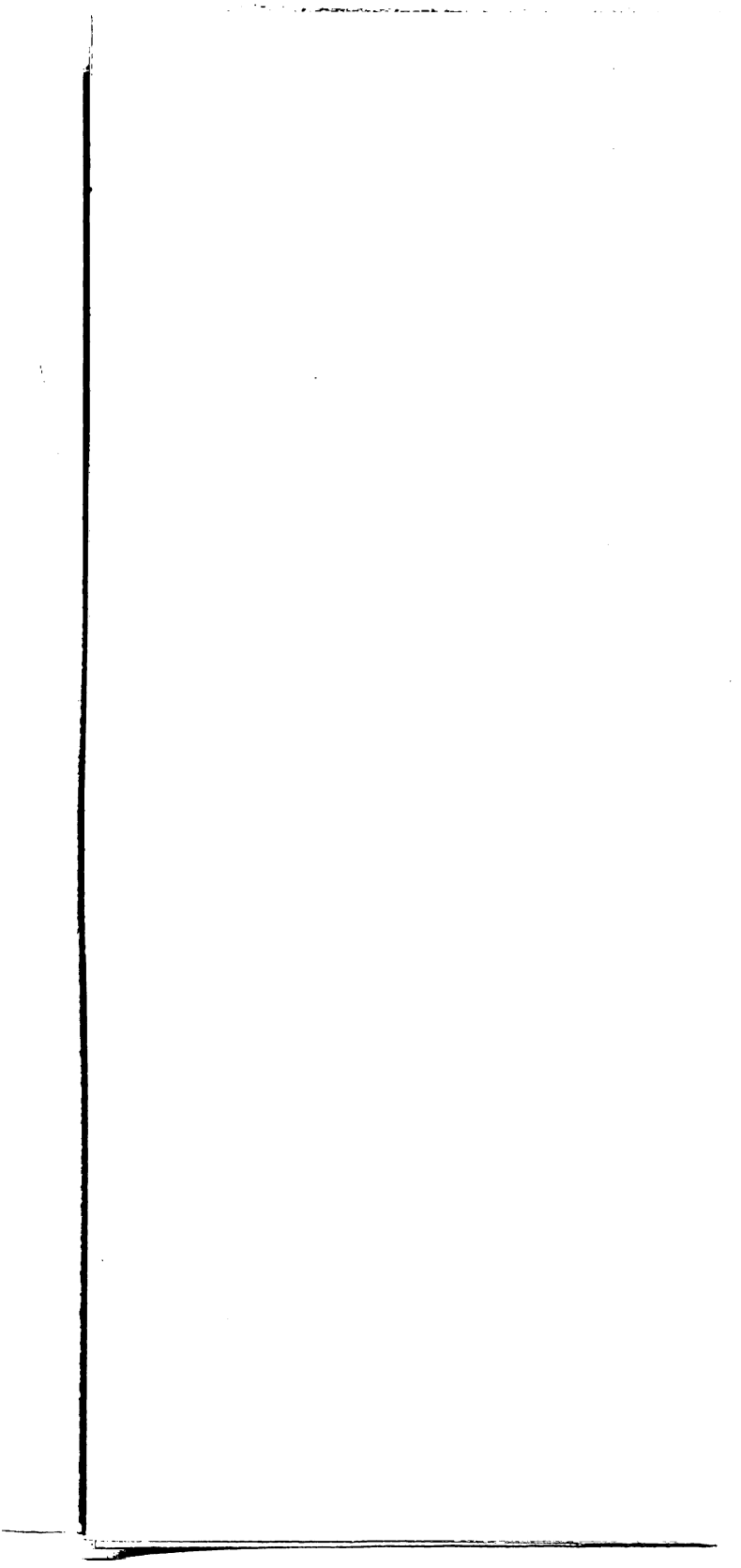

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16—19487

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Year	Brick		Natural gas	
	M	Value	M cubic feet	Value
1885				
1886				
1894				$75,000
1895				100,000
1896	7,000	$35,000		85,157
1897	5,500	22,000		57,411
1898	6,500	34,000		57,289
1899	5,500	27,000	102,960	84,880
1900	2,000	20,000	27,000	19,862
1901	2,000	20,000		60,456
1902	[3]3,000	[3]18,000	81,481	67,868
1903	[4]4,000	[2]24,000	88,134	44,399
1904	7,500	45,000	106,437	47,635
1905	11,400	68,000	100,950	53,915
1906	7,500	49,500	103,450	55,115
1907	12,250	81,000	101,000	52,723
1908	28,412	189,560	60,903	49,194
1909	8,088	242,634	71,883	149,063
1910	8,744	212,538	313,392	159,451
1911	5,275	49,650		114,433
1912	6,128	64,874		145,166
1913	6,314	73,768	142,730	67,967
1914	5,793	82,890	154,872	25,900
1915	3,000	75,000	161,923	143,974
1916	10,189	158,722	182,441	141,605
1917	also tile	185,060	348,146	72,585
1918		305,475	202,453	60,405
1919		231,478	200,943	76,200
1920		[2]	200,433	74,957
1921		294,712	204,057	79,571
1922		[2]	199,389	62,454
1923		[2]		[2]
1924	14,936	462,688		[2]
1925	also tile	472,983		
1926	also tile	511,448		
1927	also tile	630,218		
1928	also tile	512,425		
1929	and tile	607,469		
1930	11,858	478,454		
1931	also tile	308,217		
1932	[2]		[2]	
1933	[2]		[2]	
1934	[2]		[2]	
1935	[2]		[2]	
1936	[2]		3,104,068	294,457
1937			5,740,226	484,381
1938			5,720,352	503,667
1939		57,394	10,432,694	834,694
1940	[2]		9,037,712	574,452
1941	[2]		10,105,068	659,137
Totals		[2]$7,051,157		[2]$5,635,423

[1] Production of manganese ore in California began at the Ladd Mine, San Joaquin County, in the Tesla District in 1867. When shipments of this ore to England ceased late in 1874, upwards of 5,000 tons had been produced by that property. Annual amounts earlier than 1894 are not separable.

[2] Estimated.

[3] See under 'Unapportioned.'

[4] Includes crushed rock, rubble, rip-rap, sand, gravel.

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SAN JOAQUIN COUNTY, 1885-1941

Manganese		Miscellaneous stone,[4] value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
[1]				$2,500	Gold.
55	$550		275 tons	343	Pottery clay.
280	2,800				
			273 tons	2,730	Asphalt.
			3 tons	90	Infusorial earth.
		$25,000			
60	1,080		2,000 tons	13,000	Clay.
				214,835	Unapportioned, 1900-1909.
260	4,160				
			25,510 tons	25,510	Clay.
		900	1,494 tons	18,522	Clay.
			3,000 tons	4,000	Glass sand.
150	1,500	19,440		200	Other minerals.
460	7,400	21,620		400	Other minerals.
6,493	115,460	53,075			
6,320	157,500	55,003		72	Other minerals.
4,281	117,709	47,085		71,299	Gold, platinum, silver.
343	10,274	59,510		71,538	Gold, platinum, silver.
[2]		63,077		333,068	Brick, gold, manganese, platinum, silver.
425	3,750	72,815		23,530	Other minerals.
[2]		[2]		314,269	Brick and clay.
				96,672	Manganese ore, miscellaneous stone.
		260,597		472,858	Brick and clay.
				77,774	Manganese ore, natural gas.
		83,874		55,938	Manganese ore, natural gas.
		103,237		161,598	Other minerals.
		129,037		201,515	Other minerals.
		81,747			
		63,444		49,062	Unapportioned.
		135,317		47,105	Unapportioned.
		202,307		44,101	Unapportioned.
		119,729		34,250	Unapportioned.
			6 oz.	2	Silver.
		76,701		1,440	Gold.
				192,349	Brick and natural gas.
			4 oz.	1	Silver.
		49,913		1,017	Gold.
				102,196	Brick and hollow building tile, natural gas.
				1,133	Gold.
		77,507	3 oz.	2	Silver.
				69,455	Brick and hollow building tile, natural gas.
				99,698	Gold.
		93,053		109	Silver.
				223,408	Brick and hollow tile, natural gas.
		133,690		32,917	Brick, gold, silver.
				79,765	Gold.
		95,869		125	Silver.
				46,480	Other minerals.
				41,580	Gold.
		175,530		59	Silver.
				61,071	Other minerals.
				66,185	Gold.
		146,369		144	Silver.
				112	Other minerals.
				329,175	Gold.
		175,438		648	Silver.
				67,199	Brick and hollow tile, pottery clay, platinum.
				830,935	Gold.
		251,901		1,430	Silver.
				89,216	Other minerals.
[3]19,127	$422,183	$2,872,785		$4,607,531	

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Year	Bituminous rock		Brick		Chromite		Gold,[3] value	Mineral water	
	Tons	Value	M	Value	Tons*	Value		Gallons	Value
1876									
1877									
1878									
1879									
1880					[2]17,030	$184,704			
1881					1,790	24,000			
1882							$5,000		
1883					5,558	99,200			
1884									
1885					670	8,880			
1886					980	13,140	9,164		
1887	36,000	$180,000			600	7,980	1,740		
1888	43,000	215,000			300	2,550	3,000		
1889					4,300	66,865	6,260		
1890					687	5,496	8,800		
1891					75	592	1,785		
1892							1,097		
1893							600		
1894	9,432	32,263			[4]800	10,500	1,200		
1895	6,354	17,600	750	$3,750	[4]700	6,650	3,000		
1896	5,113	11,464			[4]200	2,000	3,000		
1897	2,291	5,117					2,500	7,800	$1,960
1898	4,788	18,927	830	5,280			1,000	800	400
1899	10,818	40,288	650	3,500					
1900	3,346	12,905	500	4,000					
1901	9,472	33,070	650	5,200			300	24,000	6,000
1902	1,790	2,327	900	7,650			2,399	4,500	800
1903	3,365	7,572	750	6,000			1,840		
1904							630	4,000	1,000
1905	2,533	6,348	400	3,200			300		
1906	2,533	6,644	300	2,400					
1907	2,167	8,128	2,000	16,000			316	4,800	1,000
1908	5,077	21,875	1,440	12,900				4,800	1,056
1909	2,731	6,369	2,245	19,605				4,000	1,000
1910	1,982	4,016	900	8,000				6,000	1,600
1911	2,710	5,230	2,000	18,000				2,000	1,000
1912	807	1,472						2,500	625
1913	609	1,149	1,750	17,500			124	1,500	600
1914	579	1,118						1,000	250
1915	[6]				[6]			4,500	675
1916	[6]		4,150	45,500	1,855	27,733		2,500	475
1917	[6]		[6]		4,109	92,846		1,500	300
1918	[6]				10,443	539,423	[6]	[6]	
1919	[6]				1,158	26,431			
1920					399	10,440			
1921					[6]			[6]	
1922					[6]			[6]	
1923					[6]			[6]	
1924			2,033	35,987				[6]	
1925			[6]		[6]		840	[6]	

* Copper was weighed in tons of 2,360 pounds and chromite in tons of 2,240 pounds, but here converted to 2,000 pounds.

[1] The total production of asphaltum up to 1894 was reported as 800 barrels. This production reduced to tons is shown under 1894.

[2] Although a great deal of chromic iron ore was mined and marketed during the '70's, there are no records of yearly production. The above figure for 1880 represents the total shipments from San Luis Obispo up to August, 1880.

[3] There are no records of annual mineral production for the period of 1865-1876, but there was a small annual gold production from shallow placers before this, and these placers have no doubt yielded considerable gold never reported. The same observation applies to a number of small quicksilver properties worked in the '70's.

[4] Concentrates.

[5] Includes crushed rock, rubble, sand, gravel; also granite and sandstone prior to 1915.

[6] See under 'Unapportioned.'

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SAN LUIS OBISPO COUNTY, 1876-1941

Petroleum		Quicksilver[2]		Miscellaneous stone,[4] value	Miscellaneous and unapportioned		
Barrels	Value	Flasks	Value		Amount	Value	Substance
.....	.....	6,428	$282,832	.....	*236,000 lbs.	$7,287	Copper.
.....	.....	3,310	123,463	.....	.....	.....	
.....	.....	2,151	70,768	.....	.....	.....	
.....	.....	779	2,358	.....	.....	.....	
.....	.....	.....	.....

Year	Bituminous rock		Brick		Chromite		Gold, value	Mineral water	
	Tons	Value	M	Value	Tons*	Value		Gallons	Value
1926					[6]			[6]	
1927									
1928			[6]		[6]		$725	[6]	
1929				$31,320	[6]		1,267	[6]	
1930			[6]		[6]		1,461	[6]	
1931			[6]				1,549	[6]	
1932							1,021	[6]	
1933			[6]		[6]		759	[6]	
1934			[6]		[6]		1,946	[6]	
1935			[6]		[6]		287	[6]	
1936			[6]		[6]		[6]	[6]	
1937			[6]				9,625	[6]	
1938			[6]				[6]	[6]	
1939							490	[6]	
1940			[6]				350	[6]	
1941			[6]		[6]		315	[6]	
Totals	[6]157,497	$638,882	[6]	$245,792	[6]51,653	$1,129,430	[6]$74,689	[6]76,200	$18,741

[7] Includes chromite, granite (tuff), marble, mineral water, petroleum, volcanic ash.
[8] Includes brick and building tile, chromite, clay (pottery), granite (tuff), marble, mineral water, petroleum, volcanic ash.
[9] Includes brick and building tile, granite (tuff), mineral water, volcanic ash, sandstone.
[10] Includes brick, chromite, mineral water, petroleum, volcanic ash, miscellaneous stone.
[11] Includes brick, granite (tuff), mineral water, volcanic ash, chromite, petroleum, sandstone.
[12] Includes brick and hollow building tile, chromite, clay (pottery and oil-well drilling), limestone, mineral water, petroleum, volcanic ash, sandstone.
[13] Includes brick and hollow tile, chromite, clay (pottery and oil-well drilling), gold, limestone, marble, mineral water, petroleum, volcanic ash, sandstone.
[14] Includes brick and building tile, clay (oil-well drilling), limestone, marble, mineral water, petroleum, volcanic ash, sandstone, miscellaneous stone.
[15] Includes brick and hollow tile, clay (oil-well drilling), limestone, mineral water, petroleum, marble, volcanic ash.
[16] Includes brick and hollow tile, clay (oil-well drilling), limestone, mineral water, petroleum, sandstone, volcanic ash.
[17] Includes brick and hollow tile, chromite, limestone, mineral water, petroleum, sandstone, volcanic ash.

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SAN LUIS OBISPO COUNTY, 1876-1941—Continued

Petroleum		Quicksilver		Miscellaneous stone,[5] value	Miscellaneous and unapportioned		
Barrels	Value	Flasks	Value		Amount	Value	Substance
27,982	$22,162	----------	----------	$193,138	----------	$22,914	Clay and clay products.
					----------	15,080	Chromite, mineral water, natural gas, quicksilver.
16,709	12,531	470	$53,600	195,631	----------	33,268	Brick, building tile (hollow), copper mineral water, pumice.
15,140	12,869	435	48,254	111,181	2 fine oz.	1	Silver.
					----------	44,095	Brick, building tile, chromite, mineral water.
"	----------	1,076	120,995	11,061	2 fine oz.	1	Silver.
					----------	26,440	Other minerals.[7]
"	----------	1,306	157,440	28,659	3 fine oz.	1	Silver.
					----------	60,554	Other minerals.[8]
53,349	29,3242	2,574	202,870	150,016	2 fine oz.	1	Silver.
					----------	16,357	Other minerals.[9]
66,744	36,709	2,035	106,508	105,075	3 fine oz.	1	Silver.
					----------	616	Mineral water, volcanic ash, sandstone.
"	----------	285	15,759	"	----------	39,396	Other minerals.[10]
"	----------	1,302	91,677	11,860	8 fine oz.	5	Silver.
					----------	32,965	Other minerals.[11]
"	----------	2,474	167,613	22,236	----------	75,307	Other minerals.[12]
"	----------	2,588	196,786	20,916	----------	134,644	Other minerals.[13]
"	----------	2,123	179,731	"	----------	15	Silver.
					----------	134,320	Other minerals.[14]
"	----------	1,114	77,938	19,150	----------	145,412	Other minerals.[15]
"	----------	276	26,587	22,407	----------	124,640	Other minerals.[16]
"	----------	1,470	243,832	70,231	----------	176,916	Other minerals.[16]
"	----------	1,844	325,088	169,442	----------	77,180	Other minerals.[17]
675,687	$569,868	69,680	$4,183,063	[6]$2,120,751	----------	$2,731,796	

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Year	Salt		Brick	
	Tons	Value	M	Value
1895				
1896				
1897				
1898			1,140	$7,000
1899			2,870	24,225
1900			225	9,000
1901	40	$400	500	9,070
1902	6,500	16,000	200	8,000
1903	7,700	25,000	3,100	77,500
1904	12,000	62,500	3,902	56,436
1905	16,000	67,500	5,902	61,436
1906	14,900	44,920	6,613	67,000
1907	14,000	56,000	8,078	86,285
1908	23,800	60,900	4,494	63,231
1909	22,100	95,400	1,346	38,405
1910	26,000	64,750	1,350	37,250
1911	27,500	55,000	1,350	43,000
1912	33,000	80,000	1,400	40,500
1913	28,000	72,250	1,418	44,680
1914	27,500	76,750	950	24,074
1915	25,500	63,750	715	19,550
1916	28,540	70,807	986	38,121
1917	36,483	114,689		
1918	26,434	144,604		
1919	30,238	136,190		
1920	37,409	206,897		
1921	32,587	167,022	[3]	
1922	32,428	149,302		
1923	35,757	199,192		
1924	54,258	205,176		
1925	31,325	155,925		
1926		[3]		
1927		[3]		
1928	[3]			
1929	[3]			
1930	[3]			
1931	[3]			
1932	[3]			
1933	[3]			
1934	[3]			
1935	[3]			
1936	[3]			
1937	[3]			
1938	[3]			
1939	[3]			
1940	[3]			
1941	[3]			
Totals	630,089	$2,360,924	[4]46,539	$754,763

[1] The limestone produced in San Mateo County is used as crushed rock and is included under Stone Industry. Previous to 1915 it was erroneously classified as industrial limestone and tabulated under that heading.
[2] Includes crushed rock, rubble, sand, gravel.
[3] See under 'Unapportioned.'
[4] Includes shells dredged from San Francisco Bay.

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SAN MATEO COUNTY, 1895-1941

Limestones		Miscellaneous stone[2], value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
			5,000 tons	$5,000	Clay.
			1,000 bbls.	1,250	Petroleum.
			500 bbls.	1,250	Cement.
		$40,000			
		70,000			
		34,000			
		7,500			
		6,000	17 tons	255	Asphalt.
		301,120	5,000 tons	5,625	Clay.
		150,000			
		113,866	3,000 bbls.	6,000	Petroleum.
		75,000			
		111,823			
		2,111			
37,687	$17,451	89,142			
120,306	96,245	90,221		500	Gems.
111,382	89,106	88,766			
93,500	74,800	61,185			
102,300	66,495	29,587			
138,544	78,506	18,635		300	Gems.
			81,000 tons	34,120	Sandstone.
153,329	75,941	34,648	6,581 bbls.	845	Lime.
				200	Gems.
				100	Gems.
[1]		93,391		1,100	Other minerals.
			593 tons	732	Pottery clay.
		25,663		85	Gems.
				150	Gems.
		71,668		20,656	Brick and tile, magnesium chloride, potash.
		34,164		15,044	Magnesium chloride, potash.
		42,235		63,246	Other minerals.
			322 bbls.	966	Petroleum.
		46,040		39,200	Magnesium salts, potash.
			322 bbls.	966	Petroleum.
		61,697		27,407	Brick, magnesium chloride, potash.
		60,009		34,984	Magnesium salts, petroleum, potash.
		96,815		33,809	Magnesium chloride, petroleum, potash.
		75,078		21,917	Gems, magnesium chloride, petroleum, potash.
		90,757		1,330,831	Cement, gems, magnesium chloride, natural gas, petroleum, potash.
		77,470		1,816,383	Cement, magnesium chloride, natural gas, petroleum, salt.
[1]		129,802		1,734,036	Cement, limestone, natural gas, petroleum, salt.
[1]		251,602		3,076,971	Cement, limestone[4], magnesium carbonate, natural gas, petroleum, salt.
[1]		278,839		3,393,940	Cement, limestone[4], magnesium carbonate, natural gas, salt.
[1]		340,490		2,159,447	Cement, limestone[4], magnesium carbonate, natural gas, salt.
[1]		219,715		2,010,794	Cement, limestone[4], magnesium carbonate, natural gas, salt.
[1]		169,689		1,173,761	Cement, limestone[4], magnesium carbonate, natural gas, salt.
[1]		75,752		1,493,728	Cement, limestone[4], magnesium carbonate, natural gas, petroleum, salt.
[1]		24,000		1,538,490	Cement, limestone[4], magnesium carbonate, natural gas, petroleum, salt.
[1]		98,488		1,491,671	Cement, limestone[4], magnesium carbonate, salt.
[1]		101,845		2,308,962	Cement, limestone[4], magnesium carbonate, salt.
[1]		85,680		2,225,104	Cement, limestone[4], magnesium carbonate, salt.
[1]		[1]		2,026,217	Cement, limestone[4], magnesium carbonate, salt, miscellaneous stone.
[1]		65,392		2,353,503	Cement, limestone[4], magnesium carbonate, salt, petroleum.
[1]		76,497		2,544,114	Cement, limestone[4], magnesium carbonate, petroleum, salt.
[1]		120,541		3,305,072	Cement, limestone[4], magnesium carbonate, petroleum.
[5]757,048	$498,544	[5]$4,136,203		$36,298,631	

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Year	Lime		Limestone	
	Barrels [1]	Value	Tons	Value
1894	167,000	$138,200	4,000	$5,000
1895	145,000	133,750	12,055	12,055
1896	116,000	95,500	27,827	28,663
1897	149,600	111,800	10,688	8,005
1898	151,000	151,000	7,912	5,738
1899	161,893	176,893	4,135	3,730
1900	163,985	131,288	1,669	1,213
1901	161,500	161,500	3,845	3,595
1902	185,223	161,302	1,850	1,850
1903	220,835	185,442	3,000	2,725
1904	293,207	306,775	[2]	
1905	218,084	199,974	7,325	52,125
1906	255,469	347,490	11,431	55,242
1907	213,599	241,179	6,370	6,000
1908	119,996	119,996	1,178	2,167
1909	228,875	296,785	3,457	5,273
1910	214,137	230,513	4,361	6,770
1911	216,508	206,225	22,622	44,591
1912	169,646	159,505	7,307	7,553
1913	75,000	60,000	39,494	30,994
1914	173,282	157,011	14,666	25,082
1915	191,643	177,873	2,047	4,873
1916	176,263	225,485	4,318	9,820
1917	213,104	173,778	6,527	11,378
1918	182,083	285,316	7,132	15,313
1919	150,271	234,039	5,527	12,690
1920	141,633	202,908	5,062	20,101
1921	122,907	242,869	[2]	
1922	174,490	235,802	4,581	20,534
1923	157,660	203,632	6,733	14,242
1924	127,830	212,540	[2]	
1925	165,340	224,724	16,551	33,102
1926	154,570	227,904		
1927	134,310	173,207	16,717	38,045
1928	121,290	135,991	8,600	24,849
1929	100,750	112,761	15,143	40,786
1930	[2]		11,405	46,925
1931	[2]		9,383	34,430
1932	[2]		6,330	15,292
1933	[2]		6,413	22,587
1934	[2]		[2]	
1935	[2]		[2]	
1936	[2]		[2]	
1937	[2]		13,043	45,754
1938	[2]		[2]	
1939	[2]		34,873	47,529
1940	[2]		30,807	73,875
1941	[2]		19,937	96,978
Totals	[3]6,113,983	$6,606,998	[3]426,321	$1,134,713

[1] Includes crushed rock, rubble, sand, gravel.
[2] See under 'Unapportioned.'

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SANTA CRUZ COUNTY, 1894-1941

Bituminous rock		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
20,782	$79,980				
32,067	102,486	$4,000	75 M	$375	Brick.
43,843	109,536	4,000	497 M	2,485	Brick.
43,179	123,056		300 M	1,500	Brick.
40,598	113,898				
27,503	70,569	200			
21,960	58,590				
13,580	30,654		10 tons	30	Clay.
31,700	41,084		106 tons	1,060	Asphalt.
18,426	45,190	20,750	700 cu. ft.	140	Granite.
"		2,925			
17,583	42,500	1,750			
13,544	38,860	3,500			
21,955	64,707	14,800			
25,041	85,123	19,736	450 cu. ft.	336	Granite.
			28,400 tons	28,400	Clay.
31,392	110,067	20,717	63,541 tons	13,800	Clay.
				1,794,294	Unapportioned, 1900-1909.
35,565	124,195	23,425	52,970 tons	15,981	Clay.
				2,096,031	Unapportioned.
24,815	80,371	7,627		2,448,339	Unapportioned.
32,146	80,439	22,710		879,437	Other minerals.
26,932	67,330	10,511		1,647,970	Unapportioned.
40,540	115,500	4,276		1,341,089	Unapportioned.
17,399	60,728	6,794		1,331,263	Unapportioned.
"		2,815		1,440,991	Cement, marble, bituminous rock.
"		2,368		1,480,800	Cement, potash, bituminous rock.
"		9,107		2,599,717	Cement, potash, bituminous rock.
"		17,074		1,981,253	Other minerals.
"		23,379		2,834,750	Bituminous rock, cement, iron ore, mineral paint, potash.
"		22,895		3,815,121	Bituminous rock, cement, limestone, mineral paint, potash.
"		7,398		3,345,071	Cement, bituminous rock, potash.
"		15,363		3,992,668	Cement, bituminous rock, potash.
"		29,217		4,097,476	Cement, bituminous rock, potash, limestone.
"		21,125		2,948,085	Bituminous rock, cement.
				143	Gold.
"		26,361		1	Silver.
				3,249,785	Bituminous rock, cement, limestone.
"		45,570		3,216,387	Bituminous rock, cement.
		62,571		3,100,509	Bituminous rock and cement.
		75,250		3,098,836	Bituminous rock and cement.
		79,218		2,235,811	Bituminous rock, cement, iron ore, lime.
		98,881		1,633,823	Bituminous rock, cement, coal, lime.
		34,253		998,221	Bituminous rock, cement, lime.
		14,120		307	Gold.
			3 oz.	1	Silver.
				1,197,165	Bituminous rock, cement, lime.
		84,744		130	Gold.
			2 oz.	1	Silver.
				1,711,969	Bituminous rock, cement, coal, iron ore, lime, limestone.
				617	Gold.
"		78,743		6	Silver.
				1,454,067	Bituminous rock, cement, lime, limestone, marble.
"		128,407		1,974,715	Bituminous rock, cement, gold, lime, limestone, silver.
"		"		2,028,709	Bituminous rock, cement, lime, miscellaneous stone.
				350	Gold.
"		91,422		1	Silver.
				1,815,415	Bituminous rock, cement, iron ore, lime, limestone.
				70	Gold.
"		305,417		2,787,726	Bituminous rock, cement, iron ore, lime.
				665	Gold.
"		141,602		4	Silver.
				2,563,160	Bituminous rock, cement, iron ore, lime.
				315	Gold.
"		173,728		2	Silver.
				2,989,805	Bituminous rock, cement, iron ore, lime.
[2]580,550	[2]$2,225,363	[2]$1,738,749		$76,197,088	

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MINERAL PRODUCTION OF SIERRA COUNTY, 1880-1941

Year	Gold, value	Silver, value	Miscellaneous stone[1], value	Miscellaneous and unapportioned		
				Amount	Value	Substance
1880	$974,332	$576				
1881	950,000	6,000				
1882	1,100,000					
1883	1,075,000					
1884	1,177,349	145				
1885	1,433,881	11				
1886	1,967,152	2,414				
1887	1,502,469	202				
1888	1,250,000	1,500				
1889	1,446,486	1,222				
1890	733,528	2,039				
1891	701,702	811				
1892	688,464	26				
1893	839,343	46				
1894	604,722					
1895	694,470	107				
1896	786,175	424				
1897	370,208	46				
1898	399,063	519				
1899	450,115	359				
1900	659,696	3,463				
1901	575,427	755				
1902	326,155	311		24,000 gals.	$6,000	Mineral water.
1903	310,770	476				
1904	374,763	1,222				
1905	517,303	3,687				
1906	409,366	2,518				
1907	483,904	2,621		120,000 gals.	12,000	Mineral water.
1908	412,626	1,917				
1909	189,672	957				
1910	312,035	1,330				
1911	461,513	5,604				
1912	732,988	2,777		1,285 lbs. 9,919 lbs.	212 446	Copper. Lead.
1913	1,006,573	4,305		2,228 lbs.	98	Lead.
1914	730,000	3,000				
1915	726,362	3,156				
1916	724,256	3,291			1,950	Other minerals.
1917	384,428	1,629		13,031 lbs.	3,558	Copper.
1918	289,368	2,121		807 tons	40,012	Chromite.
1919	301,172	2,957	$750			
1920	442,894	3,967				
1921	612,267	5,236	2,858			
1922	1,753,242	14,484	2,900			
1923	878,164	6,134	2,312			
1924	799,276	5,198	8,000		2	Other minerals.
1925	1,373,705	8,919	3,677			
1926	564,452	2,913	2,150			
1927	678,873	3,350	70,300		10	Other minerals.
1928	674,855	3,614	1,433		24	Unapportioned.
1929	367,396	1,783	21,223			
1930	589,249	1,056	15,265		15	Unapportioned.
1931	651,754	1,661	37,500			
1932	590,294	2,268	12,965	5,395 lbs. 69,490 lbs.	340 2,005	Copper. Lead.
1933	445,102	1,173	2,833	599 lbs.	38	Copper.
1934	1,027,582	4,546	14,040	757 lbs. 2,104 lbs.	61 78	Copper. Lead.
1935	841,218	3,257	16,069	1,612 lbs. 964 lbs.	134 38	Copper. Lead.
1936	770,945	3,464	[2]		13,225	Copper, lead, miscellaneous stone.
1937	934,570	3,869	36,092	1,213 lbs.	146 3	Copper. Other minerals.
1938	900,480	3,109	[2]	17,608 lbs.	810 838	Lead. Copper and miscellaneous stone.
1939	864,430	3,177	3,366	4,752 lbs.	223 16	Lead. Other minerals.
1940	958,685	2,854	7,630	1,367 lbs.	154	Copper.
1941	957,670	3,217	[2]	1,872 lbs. 10,502 lbs.	221 599 2,640	Copper. Lead. Chromite and miscellaneous stone.
Totals	$52,020,267	$173,523	[3]$281,048		$155,205	

[1] Includes crushed rock, macadam, ballast, rubble, rip-rap, sand, gravel.
[2] See under 'Unapportioned.'

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MINERAL PRODUCTION OF SANTA BARBARA COUNTY, 1881-1941

Year	Petroleum		Natural gas		Asphalt bituminous rock		Mineral water		Diatomaceous earth		Brick		Limestone		Sandstone		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
	Barrels	Value	M cubic feet	Value	Tons	Value	Gallons	Value	Tons	Value	M	Value	Tons	Value	Cubic feet	Value		Amount	Value	Substance
1881																			$2,000	Gold.
1882																				
1889																			41,423	Gold.
1890																			10,293	Gold.
1891																			2,478	Gold.
1892																			896	Gold.
1893																				
1894	1,800	$1,800			4,550	$91,000													4,000	Gold.
1895	16,904	12,678			23,950	139,000	22,500	$3,000										12 ozs.	44	Platinum.
1896	39,792	35,813			18,430	317,910	31,500	20,300							5,000	$500			8,592	Gold.
1897	130,136	130,136	[3]500	$246	18,047	318,000	65,000	30,000											3,000	Gold.
1898	132,217	112,549	[3]165	135	19,735	351,400	15,000	7,000			100	$700							1,000	Gold.
1899	208,370	191,228	150	120	6,058	121,160	15,000	5,000			120	960								
1900	183,486	165,138	1,203	2,966	5,270	105,500	19,000	10,350			4,620	40,960	7,205	$3,602	224,820	117,260	$82,662			
1901	203,616	113,385	[3]876	438	4,145	55,800	113,780	60,200			1,250	9,825			72,000	27,100	33,400			
1902	230,440	181,313	937	375	1,259	12,590	105,280	60,200	362	$2,172	1,400	12,200	10,000	25,000	74,200	21,500			200	Gold.
1903	262,226	149,640	320	320	2,974	41,688	88,800	22,280	2,700	15,925	4,900	46,200	20,000	40,000	82,654	34,240	4,395	30,000 bbls.	30,000	Lime.
1904	790,000	445,560	3,000	1,500	9,000	190,000	118,000	18,249	6,950	112,282	1,120	8,420	6,000	12,000	5,000	3,600				
1905	3,534,000	1,413,600			3,000	30,000	115,250	21,450	3,000	15,000	4,025	34,750	5,000	7,500	29,600	18,330	57,792	52 flasks	2,070	Quicksilver.
																			725	Gold.
																			2	Silver.
1906	4,876,000	1,237,250	1,000	500	25,000	250,000	13,750	10,450	2,300	13,800	200	1,600	8,000	16,000	36,195	25,230	9,732		250	Gold.
1907	8,392,623	4,166,661	600	300	19,192	258,549	39,480	24,250	2,531	28,948	1,615	14,650	15,000	30,000	39,740	37,566	4,950	60 flasks	2,289	Quicksilver.
1908	8,847,589	4,423,794	715,612	357,806	7,000	70,000	5,500	4,932	2,950	32,012	750	7,500	16,580	33,160	10,525	6,545	10,930			
1909	8,116,788	4,069,661	768,000	394,621	200	2,488	155,400	22,200			990	9,180	4,849	6,619	31,120	10,648	5,316		89,254	Unapportioned, 1900-1909.
1910	7,682,555	3,856,222	9,198,000	1,393,250			155,000	21,500	1,343	14,117	1,900	16,825	4,028	7,898	39,720	15,888	6,035	70 flasks	3,225	Quicksilver.
1911	7,766,156	3,204,717	[3]1,003,860	100,386			73,640	15,900	1,344	13,720	1,600	13,800	4,239	8,174	58,976	29,507	6,602	50 flasks	2,301	Quicksilver.
1912	6,862,719	3,747,045	[3]3,425,000	253,633	11,120	5,556	105,000	11,550	1,129	13,074	2,615	17,150	5,327	11,666	4,500	1,670	17,480	12,000 tons	16,000	Clay.
																		17,500 bbls.	16,434	Lime.
1913	6,291,076	3,151,725	5,096,300	254,815	10,000	10,000	112,500	108,130	6,895	28,960	3,000	24,000	5,884	19,623	4,500	1,670	11,450	12,000 tons	16,000	Clay.
																		26,512 bbls.	25,910	Lime.
1914	4,325,787	1,989,862	6,313,380	378,802	25,000	50,000	160,400	152,432	[2]		2,100	16,800	6,157	11,263	9,286	1,850	15,300		70,000	Other minerals.
1915	5,634,534	3,442,700	3,193,368	279,697			189,026	156,175			1,800	14,400	5,956	10,006	29,900	6,488	13,900		61,600	Other minerals.
1916	4,502,206	3,574,752	3,660,140	724,746	[2]		176,608	110,200	[2]		[2]		[2]		3,520	1,017	12,395		111,919	Bituminous rock, brick, 'granite,' diatomaceous earth, limestone, quicksilver.
1917	5,631,563	4,550,303	3,104,170	227,507			104,991	86,026	[2]		[2]		[2]		28,700	6,150	5,950	97 tons	126,830	Potash.
																			150,315	Brick, diatomaceous earth, limestone, quicksilver.
1918	7,334,104	9,057,618	4,150,316	338,036	[2]		73,117	97,162	[2]		[2]		3,790	18,830	[2]		11,613	1,863 tons	256,780	Potash.
																			271,792	Bituminous rock, chromite, brick, diatomaceous earth, quicksilver, sandstone.
1919	6,089,082	6,850,217	4,084,709	336,092	[2]		82,147	81,041	[2]		[2]		[2]				29,900	298 tons	30,128	Potash.
																			267,539	Bituminous rock, chromite, brick, diatomaceous earth, limestone.
1920	5,803,583	9,140,643	1,359,665	128,126	[2]		95,843	110,931	[2]		[2]				[2]		27,436	410 tons	40,000	Potash.
																			1,091,475	Bituminous rock, brick, diatomaceous earth, quicksilver, sandstone.
1921	5,465,942	9,122,657	1,544,892	145,179	[2]		97,847	133,590	[2]		[2]				[2]		65,600	143 tons	5,720	Potash.
																			718,183	Bituminous rock, diatomaceous earth, sandstone.
1922	3,931,155	3,974,398	1,876,900	167,290	[2]		110,552	52,269	[2]		[2]				[2]		72,300		347,101	Bituminous rock, brick, diatomaceous earth, potash, sandstone, shale oil.
1923	3,061,947	2,394,443	1,612,287	172,725	[2]		81,200	80,300	[2]						[2]		14,324		2,344,090	Bituminous rock, diatomaceous earth, sandstone, shale oil.
1924	2,905,181	3,009,768	1,643,355	158,836	[2]		[2]		[2]		[2]		[2]		[2]		75,305		1,915,831	Clay and clay products, bituminous rock, diatomaceous earth, mineral water, shale oil.
1925	2,647,380	2,419,705	2,545,208	248,708			[2]		[2]			75,487					106,665	2,390 tons	5,800	Clay (pottery).
																			1,482,066	Diatomaceous earth, mineral water, shale oil.
1926	1,925,204	1,526,587	2,230,501	246,091	[2]		[2]		[2]			17,076					88,575	1,100 tons	1,700	Clay (pottery).
																			703,519	Bituminous rock, diatomaceous earth, mineral water, shale oil.
1927	2,173,887	1,630,415	1,701,715	204,775	[2]		[2]		[2]		[2]						139,093		725,013	Bituminous rock, brick and hollow building tile, clay (pottery), diatomaceous earth, mineral water, sandstone, shale oil.
1928	3,078,103	3,409,923	1,154,803	158,930	[2]		2,950	175	[2]		[2]		[2]				270,661		737,650	Barite, bituminous rock, brick and hollow building tile, diatomite, marble.
1929	11,141,789	13,984,055	1,291,786	145,680	[2]		[2]		[2]		[2]		[2]				264,745		2,012,656	Barite, bituminous rock, brick and hollow building tile, diatomite, marble, mineral water.
1930	15,914,132	22,343,440	6,274,436	299,918	[2]		[2]		[2]		[2]	14,980	[2]				202,955		1,507,081	Barite, bituminous rock, clay (pottery), diatomite, marble, mineral water, quicksilver.
1931	11,660,456	11,121,743	6,534,435	446,885	[2]		[2]		[2]				[2]				67,476	7,135 lbs.	650	Copper.
																			81	Gold.
																		6 ozs.	2	Silver.
																			1,077,923	Barite, bituminous rock, brick and hollow building tile, clay (pottery), diatomite, marble, mineral water, quicksilver.
1932	6,658,649	6,405,620	4,479,831	309,154	[2]		[2]		[2]		[2]		[2]				87,045	129 flasks	6,773	Quicksilver.
																			774,045	Barite, bituminous rock, diatomite, marble, mineral water.
1933	6,395,679	5,999,786	3,471,759	184,609	[2]		[2]		[2]		[2]		[2]				38,019	27,998 lbs.	1,792	Copper.
																			27	Gold.
																		20 ozs.	7	Silver.
																			787,533	Bituminous rock, diatomite, marble, mineral water, quicksilver.
1934	6,648,120	6,322,148	4,860,533	316,360	[2]		[2]		[2]		[2]		[2]				51,602		880,081	Bituminous rock, brick, diatomite, marble, mineral water.
1935	7,649,068	7,068,739	4,596,531	524,998	[2]		[2]		[2]		[2]						8,081		1,051,845	Bituminous rock, diatomite, mineral water.
1936	7,149,077	8,174,953	4,562,691	319,877	[2]		[2]		[2]								80,165		1,118,344	Bituminous rock, brick, diatomite, marble, quicksilver, mineral water.
1937	8,273,815	8,961,642	5,557,621	328,572	[2]		[2]		[2]		[2]		[2]				[2]	634 flasks	51,140	Quicksilver.
																			1,367,702	Bituminous rock, brick, chromite, diatomite, marble, mineral water, miscellaneous stone.
1938	9,555,732	9,309,262	4,655,732	327,466	[2]		[2]		[2]		[2]						[2]	104 flasks	7,179	Quicksilver.
																			1,039,815	Bituminous rock, brick, pottery clay, diatomite, granite, marble, mineral water, miscellaneous stone.
1939	8,944,217	7,423,000	4,594,932	307,732	[2]				[2]		[2]						70,326	74 flasks	6,876	Quicksilver.
																			1,103,072	Bituminous rock, brick, pottery clay, diatomite, marble.
1940	10,270,200	6,354,757	4,726,148	305,203	[2]		[2]		[2]		[2]						102,476	7,765 lbs.	877	Copper.
																			35	Gold.
																		500 flasks	81,223	Quicksilver.
																			5	Silver.
																			1,189,775	Bituminous rock, brick, diatomite, marble, mineral water.
1941	11,963,579	7,705,929	5,602,417	346,010	[2]		[2]		[2]		[2]						199,159		1,771,361	Bituminous rock, pottery clay, diatomite, marble, mineral water, quicksilver.
Totals	250,242,664	$218,078,960	121,599,784	$10,839,415	[3]213,930	$2,420,641	[3]2,544,061	$31,679	[3]31,504	$290,010		$398,463	[3]128,015	$261,341	[3]789,956	$366,759	[3]$2,371,810		$27,581,340	

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] See under 'Unapportioned.'
[3] Quantity estimated, as only value originally reported.

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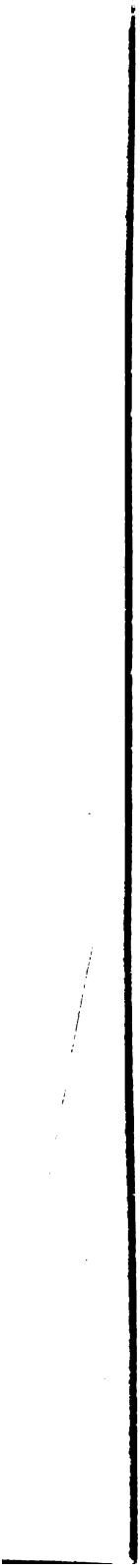

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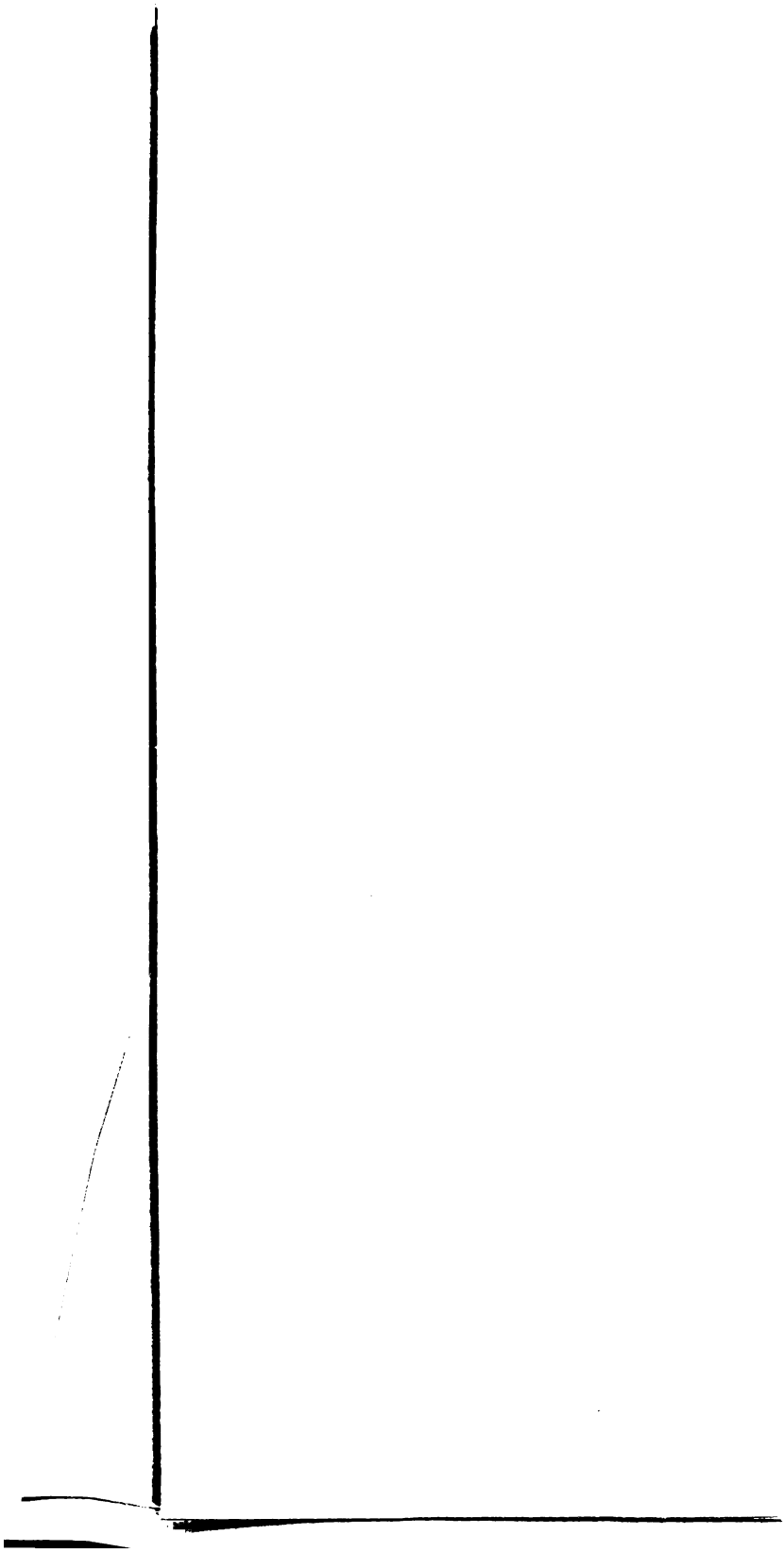

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Year	Gold, value	Silver, value	Chromite		Mineral water	
			Tons	Value	Gallons	Value
1880	$440,735	$95,340				
1881	850,000	1,500				
1882	720,000					
1883	400,000					
1884	475,000					
1885	338,659					
1886	342,677	64				
1887	606,859	177				
1888	625,000					
1889	915,294	370				
1890	860,303	23				
1891	957,220	120				
1892	1,013,332	56				
1893	799,108					
1894	760,782					
1895	950,006	177			200,000	$80,800
1896	1,091,265	653			[2]	
1897	842,123	34			[2]	
1898	768,804	321			[2]	
1899	991,771	100			[2]	
1900	951,397	[3]6,700			700,000	45,000
1901	886,043	[3]2,980			700,000	175,000
1902	906,989	233			750,000	187,500
1903	613,576	22			750,000	50,000
1904	892,685	1,230			750,000	50,000
1905	803,035	2,499			[2]	
1906	[2]	[2]			[2]	
1907	398,017	3,037			725,000	36,250
1908	504,156	6,125			700,000	80,000
1909	416,160	2,145			500,000	10,000
1910	437,376	2,322			500,000	60,000
1911	422,297	2,561			700,000	120,000
1912	472,314	2,980	220	$2,310	700,000	120,000
1913	[4]180,125	[4]1,228			700,000	120,000
1914	312,842	1,026			650,000	65,000
1915	426,716	2,081	[2]		626,680	62,990
1916	441,307	2,312	2,25	28,731	502,650	50,530
1917	325,550	16,883	2,046	49,797	503,000	50,600
1918	294,227	14,501	6,612	336,588	501,750	50,175
1919	226,525	17,049	510	13,379	451,500	90,375
1920	80,707	5,218	215	5,732	300,150	60,015
1921	42,635	294	[2]		250,150	5,015
1922	75,105	612				
1923	45,633	298			200,150	4,042
1924	63,570	296				6,100

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SISKIYOU COUNTY, 1880-1941

Platinum group metals		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Ounces	Value		Amount	Value	Substance
100	$600				
				$1,202,742	Unapportioned, 1900-1909.
			200 lbs.	23	Copper.
1.6	21				
5.3	93		2,500 cu. ft.	1,250	Sandstone.
			2,500 cu. ft.	1,500	Sandstone.
			193 lbs.	39	Copper.
			2,643 lbs.	140	Lead.
		$39,000	11,433 cu. ft.	12,897	Sandstone.
			1,000 bbls.	1,000	Lime.
			220 tons	300	Limestone.
			4,949 lbs.	1,183	Lead.
			1,800 cu. ft.	1,485	Sandstone.
			1,090 lbs.	1,680	Lime.
			3,360 lbs.	144	Lead.
			50 tons	500	Pumice.
		5,028	1,050 cu. ft.	1,750	Sandstone.
			100 bbls.	300	Lime.
			2,225 tons	2,200	Limestone.
				14,745	Gems.
			1,204 cu. ft.	2,000	Sandstone.
		9,475	335 bbls.	735	Lime.
			35 tons	525	Limestone.
				1,000	Gems.
			150 bbls.	120	Lime.
		6,580	24 tons	24	Limestone.
			650 cu. ft.	455	Sandstone.
			250 cu. ft.	250	Sandstone.
		609		250	Gems.
				250	Gems.
		4,883	90 tons	2,000	Pumice.
				1,500	Other minerals.
			100 tons	500	Coal.
9	304	5,371	58 lbs.	2	Lead.
			677 bbls.	629	Lime.
			250 cu. ft.	150	Sandstone.
			188 lbs.	9	Lead.
		4,630	745 bbls.	745	Lime.
				16,923	Chromite, copper, marble, sandstone.
[2]		45,407		12,609	Copper, building stone, lime, platinum, sandstone.
				500	Granite.
15	709	134,382	888,043 lbs.	242,436	Copper.
			192 lbs.	17	Lead.
				8,535	Lime, sandstone, soda.
1	58	24,588	573,593 lbs.	141,677	Copper.
7	1,015	26,405		15,473	Lead and pumice.
		30,322		111,294	Copper, limestone, pumice, quicksilver.
[3]		44,343		47,121	Copper, lime, limestone, potash, pumice, quicksilver.
		21,726		1,060	Asbestos, brick, chromite, lime, platinum.
3	339	129,291		4,020	Other minerals.[5]
		67,787		1,408	Other minerals.[6]
				3,034	Other minerals.[7]

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Year	Gold, value	Silver, value	Chromite		Mineral water	
			Tons	Value	Gallons	Value
1925	$180,120	$831			[3]	
1926	141,240	709			[3]	
1927	138,822	586			[3]	
1928	85,717	421			[3]	
1929	63,843	863			[3]	
1930	70,332	4,172			[3]	
1931	74,326	169			[3]	
1932	133,115	304			[3]	
1933	324,954	686			[3]	
1934	528,395	1,861			[3]	
1935	575,676	1,610			[3]	
1936	639,030	2,873				
1937	1,055,600	3,420			[3]	
1938	1,294,230	3,335			[3]	
1939	1,708,840	5,196	[3]		[3]	
1940	2,068,815	6,651			[3]	
1941	2,351,790	7,135	[3]		[3]	
Totals	$36,402,770	$234,389	11,854	$436,537	[3]12,361,030	$1,579,392

[1] Includes crushed rock, rubble, rip-rap, sand, gravel.
[2] Recalculated to 'commercial,' from 'coining value' as originally published.
[3] See under 'Unapportioned.'
[4] Production from dredging operations included in Stanislaus County production.
[5] Includes limestone and mineral water.
[6] Includes lead and lime.
[7] Includes coal, limestone, lime and platinum.

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SISKIYOU COUNTY, 1880-1941—Continued

Platinum group metals		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Ounces	Value		Amount	Value	Substance
[2]	----	$23,800	----	$3,535	Lime and limestone.
			----	11,340	Mineral water, platinum, sandstone.
16	$1,780	327,569	----	22,853	Coal, lead, mineral water, sandstone.
10	690	102,428	----	56,420	Mineral water, sandstone.
----	----	370,833	----	14,195	Copper, lead, gems (rhodonite), mineral water.
----	----	110,878	----	54,205	Copper, lead, limestone, quicksilver, mineral water.
----	----	85,851	----	75,046	Copper, lead, granite, mineral water, gems, platinum, quicksilver, lime, pumice.
----	----	79,772	----	32,740	Other minerals.
----	----	23,415	----	27,185	Lead, quicksilver, mineral water.
----	----	29,036	----	19,502	Copper, lead, mineral water, pumice.
----	----	67,216	----	50,694	Copper, lead, mineral water, pumice, tube-mill pebbles.
[2]	----	66,664	----	61,787	Copper, mineral water, pumice, tube-mill pebbles.
			1,805 lbs.	166	Copper.
----	----	106,182	6,088 tons	49,200	Pumice.
			----	33,652	Lead, mineral water, platinum, tube-mill pebbles.
			1,168 lbs.	144	Copper.
----	----	103,519	----	37,668	Lead, gems, mineral water, pumice, quicksilver, tube-mill pebbles.
[2]	----	116,331	----	96,919	Copper, lead, mineral water, platinum, pumice, tube-mill pebbles.
[2]	----	99,906	701 tons	5,169	Pumice.
			----	30,884	Chromite, mineral water, platinum, tube-mill pebbles.
[2]	----	102,923	637 tons	2,250	Pumice and scoria.
			----	38,564	Copper, mineral water, platinum.
[2]	----	141,439	7,132 tons	16,330	Pumice.
			----	61,531	Chromite, copper, lead, mineral water, platinum, quicksilver.
167.9	$5,609	$2,517,589	----	$2,663,108	

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Year	Quicksilver		Mineral water		Lime and limestone	
	Flasks	Value	Gallons	Value	Tons	Value
1873	1,800	$144,594				
1874	1,900	199,842				
1875	2,100	176,715				
1876	1,683	74,052				
1877	1,463	54,570				
1878	802	26,386				
1879	1,290	38,507				
1880	492	15,252				
1881						
1882						
1883						
1884						
1885						
1886						
1887						
1888						
1889						
1890						
1891						
1892						
1893						
1894					6,400	$8,000
1895					4,300	4,635
1896			3,094	$1,547	5,477	5,989
1897					9,608	9,801
1898					6,125	5,570
1899			20,000	4,000		356
1900			20,000	4,000	1,800	1,800
1901			17,800	4,450		5,950
1902	42	1,890	10,000	4,000		
1903	100	4,100	10,000	4,000		
1904	[2]377	15,080	10,000	4,000		
1905	542	18,518	10,000	4,000	100,000	100,000
1906	528	19,272	4,000	4,000		
1907	640	24,422	40,000	4,000		
1908	764	33,294	140,000	11,600		
1909			32,650	5,490		
1910			32,400	3,960		
1911			30,000	4,000		
1912			285,050	44,000		
1913			23,600	3,440		
1914	320	15,696	43,020	5,208	86,128	86,128
1915	[3]		64,200	8,000		
1916	660	61,710	11,200	3,750		
1917	554	52,765	10,960	2,580		
1918	593	59,122	11,440	2,722		
1919	[3]		[3]			
1920	[3]		[3]		[3]	
1921			[3]			
1922			[3]			
1923	[3]		[3]			
1924			[3]			
1925			[3]			
1926			[3]			
1927			[3]			
1928			[3]			
1929			[3]			
1930	[3]					
1931						
1932						
1933						
1934						
1935	[3]					
1936	[3]					
1937	[3]					
1938	[3]					
1939	[3]					
1940	[3]					
1941	[3]					
Totals	[1]16,650	$1,035,787	[2]829,324	$132,747	[1]219,838	$228,229

[1] Includes crushed rock, rubble, paving blocks, sand, gravel.
[2] Flasks of 76½ pounds previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.
[3] See under 'Unapportioned.'

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SOLANO COUNTY, 1873-1941

Miscellaneous stone[1], value	Natural gas, value	Miscellaneous and unapportioned		
		Amount	Value	Substance
$225				
19,650				
15,752		75 tons	$125	Pottery clay.
20,975		400 tons	500	Pottery clay.
15,065				
12,181				
18,900				
2,200				
14,250		75,000 bbls.	150,000	Cement.
21,514		250,000 bbls.	375,000	Cement.
11,113				
78,573				
143,487				
202,146	$6,584	125 tons	600	Salt.
		3,000 M	25,000	Brick.
527,319	8,053	400 tons	2,800	Salt.
		1,000 M	7,000	Brick.
		100 tons	200	Salt.
176,813	7,538	1,600 M	20,000	Brick.
		5,600 tons	11,200	Clay.
241,949	9,100	50 tons	150	Salt.
181,952	8,596	100 tons	300	Salt.
		500 M	4,000	Brick.
130,445	8,528	50 tons	100	Salt.
		2,200 M.	20,000	Brick.
28,915	7,366		13,570,019	Unapportioned, 1900-1913, inclusive.
71,288	5,546		1,500,000	Other minerals.
37,576	"		1,290,347	Cement, fuller's earth, natural gas, quicksilver, salt.
49,711	"		1,090,164	Cement, natural gas, salt.
39,826	"		1,804,060	Cement, fuller's earth, natural gas, salt.
30,124	"		1,378,758	Cement, fuller's earth, natural gas, onyx, salt.
44,156	"		1,627,928	Cement, fuller's earth, mineral water, natural gas, quicksilver.
"	"		2,930,614	Cement, limestone, onyx, mineral water, natural gas, quicksilver, miscellaneous stone.
60,604			2,969,594	Cement, mineral water, onyx.
103,394			3,004,720	Cement, mineral water, onyx.
113,545			3,263,340	Cement, mineral water, onyx, quicksilver.
117,475			2,972,000	Cement, mineral water, onyx.
145,484			2,678,547	Cement, mineral water, onyx.
			1,770,820	Onyx, travertine, cement, mineral water.
"			1,557,840	Cement, clay (pottery), mineral water, miscellaneous stone, travertine.
"			57,451	Mineral water, onyx, travertine, miscellaneous stone.
"			66,421	Mineral water, onyx, travertine, miscellaneous stone.
"			46,638	Onyx, travertine, quicksilver, miscellaneous stone.
"			62,270	Onyx, travertine, miscellaneous stone.
"			36,202	Onyx, travertine, miscellaneous stone.
"			16,996	Onyx, travertine, miscellaneous stone.
"			23,641	Onyx, travertine, miscellaneous stone.
			5,450	Onyx and travertine.
2,000	"		46,552	Natural gas, travertine, quicksilver, miscellaneous stone.
"	"		145,567	Natural gas, quicksilver, miscellaneous stone.
"	"		431,677	Natural gas, quicksilver, miscellaneous stone.
"	604,868		35,156	Quicksilver, miscellaneous stone, travertine.
"	666,790		42,145	Quicksilver, miscellaneous stone, travertine.
117,180	1,006,033		18,122	Quicksilver, granite (volcanic tuff), travertine.
$2,796,187	[2]$2,339,002		$45,060,018	

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Year	Quicksilver		Mineral paint		Brick	
	Flasks	Value	Tons	Value	M	Value
1873	50	$4,017				
1874	1,700	178,806				
1875	1,218	102,495				
1876	3,897	171,468				
1877	3,609	134,616				
1878	3,255	106,890				
1879	2,977	88,923				
1880	1,445	44,795				
1881	1,273	37,974				
1882	2,124	59,960				
1883	1,669	47,984				
1884	332	10,126				
1885	446	13,715				
1886	735	26,093				
1887	689	29,196			1,000	$5,000
1888	1,151	48,918			1,000	5,000
1889	1,345	60,525				
1890	1,046	54,915				
1891	1,660	75,115				
1892	1,630	66,357				
1893	1,445	53,104				
1894	1,368	41,998	100	$3,500	375	1,875
1895	1,813	70,707	225	3,375	350	1,750
1896	1,126	37,150	220	3,740	250	1,250
1897	1,538	59,982	270	3,780	[1]300	1,500
1898	1,704	63,048			350	2,800
1899	2,119	105,950			200	1,800
1900	2,209	99,500			280	2,360
1901	2,130	95,850			150	1,200
1902	1,440	64,685	30	105	150	1,200
1903	2,404	98,676	800	320	160	1,440
1904	[2]2,700	102,829			175	1,750
1905	2,504	97,041			500	4,000
1906	2,070	75,555			6,800	115,000
1907	560	21,369			11,600	133,479
1908	590	24,939			11,000	83,000
1909	344	14,226			6,500	29,000
1910	260	11,765				
1911	94	4,325				
1912	646	27,158				
1913	12	48				
1914	13	638				
1915	159	21,793				
1916	1,039	97,140				
1917	2,592	24,481				
1918	2,417	28,223				
1919	1,418	119,142				
1920	[3]					
1921	[3]					
1922	[3]					
1923	528	31,147				
1924	867	60,840				
1925	351	29,134				
1926						
1927	373	43,068				
1928	[3]					
1929	[3]					
1930	[3]					

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SONOMA COUNTY, 1873-1941

Mineral water		Miscellaneous stone[1], value	Magnesite		Miscellaneous and unapportioned		
Gallons	Value		Tons	Value	Amount	Value	Substance
		[6]					
		$350,000					
		367,500					
		[2]297,236					
		[3]245,000					
		[4]150,000					
		96,000					
		92,800					
		57,381					
8,000	$32,500	69,508					
14,400	19,287	73,719					
236,000	24,000	33,035					
246,680	23,490	43,371					
21,000	18,500	16,830					
575,000	35,000	20,275					
60,900	17,691	52,701	175	$1,225	64 tons	$4,460	Graphite.
30,000	9,100	121,578	130	455	42 tons	1,680	Graphite.
10,000	4,000	90,933					
11,000	4,400	75,947			1,500 bbls.	2,250	Lime.
10,000	4,000	213,830					
10,000	4,000	158,218				300	Gems.
					1,500 bbls.	2,600	Lime.
12,000	4,200	132,946	250	1,250		50	Gems.
					10,500 tons	10,700	Clay.
10,000	1,000	307,695	15	180	2,600 tons	3,000	Clay.
104,000	21,350	319,716			500 tons	5,500	Clay.
						15,000	Unapportioned, 1900-1909.
235,000	50,350	220,998					
202,500	50,250	184,035				1,000	Unapportioned.
62,500	20,950	295,198	300	3,000			
96,240	46,910	191,436					
80,015	46,160	276,516	213	2,130		700	Other minerals.
258,600	41,231	177,917	3,624	34,788		375	Other minerals.
					243 tons	2,478	Chromite.
121,366	28,031	232,113	11,653	98,280		14,000	Building stone, manganese.
					226 tons	6,200	Chromite.
121,290	35,031	146,621	5,636	61,335	362 tons	12,689	Manganese.
						64	Other minerals.
					1,540 tons	73,906	Chromite.
83,220	36,050	148,347	4,110	40,010	173 tons	7,645	Manganese.
						100	Other minerals.
96,800	22,820	144,014				62	Building stone, curbing.
29,928	6,578	217,667	[5]			63,000	Magnesite, quicksilver.
37,641	9,891	151,300	[5]			14,360	Gems, magnesite, quicksilver.
35,843	9,108	162,679				50,154	Pottery clay, gems, quicksilver.
30,661	7,106	189,059					
31,003	8,002	101,009				2,200	
17,713	6,679	119,546				4,872	Pottery clay, building stone, manganese.
36,272	7,752	208,479				6,355	Pottery clay, gems, manganese ore, petroleum, quicksilver.
25,428	5,889	208,753				7,682	Petroleum, sandstone.
32,720	9,127	111,429				6,250	Sandstone.
						85,763	Chromite, gems, quicksilver.
20,701	7,376	243,383				13,351	Sandstone.
						87,208	Chromite, gems, quicksilver.
17,900	5,318	263,644				61,437	Quicksilver, sandstone.

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Year	Quicksilver		Mineral paint		Brick	
	Flasks	Value	Tons	Value	M	Value
1931	449	$39,392				
1932	247	11,642				
1933	[5]					
1934	393	27,288				
1935	110	7,845				
1936	182	14,081				
1937	281	22,085				
1938	425	29,641				
1939	255	27,212				
1940	1,144	188,467				
1941	3,195	590,263				
Totals	577,845	$4,419,195	1,645	$14,820	41,140	$393,404

[1] Includes crushed rock, rubble, rip-rap, paving blocks, sand, gravel.
[2] Eleventh Census Report, Vol. X, Part 3, p. 605.
[3] Estimated.
[4] Flasks of 76½ pounds previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.
[5] See under 'Unapportioned.'
[6] There was a considerable production of paving blocks in Sonoma County in the '70's and '80's, but no available records of annual amounts or values.

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SONOMA COUNTY, 1873-1941—Continued

Mineral water		Miscellaneous stone[1], value	Magnesite		Miscellaneous and unapportioned		
Gallons	Value		Tons	Value	Amount	Value	Substance
44,576	$8,227	$204,702	----------	----------	----------	315	Unapportioned.
15,864	4,123	151,734	----------	----------	----------	350	Unapportioned.
23,016	2,390	147,266	----------	----------	----------	8,332	Granite (tuff), quicksilver.
12,944	2,786	130,616	----------	----------	----------	1,375	Unapportioned.
24,474	4,295	146,963	----------	----------	----------	11,280	Granite (volcanic rock).
26,642	6,460	160,068	----------	----------	----------	317	Gold.
----------	----------	----------	----------	----------	----------	4,808	Pottery, clay, gems, granite (tuff).
[5]	----------	235,585	----------	----------	----------	15,393	Pottery clay, granite (tuff), lime, mineral water, sandstone.
23,604	4,365	[5]					
53,860	6,949	284,616	----------	----------	----------	198,489	Pottery clay, granite (tuff), miscellaneous stone.
12,028	3,288	229,033	----------	----------	----------	10,292	Pottery clay, granite (tuff).
88,756	12,722	584,421	----------	----------	----------	11,972	Other minerals.
[3]3,358,085	$738,732	[4]$9,655,366	[2]25,236	$242,653	----------	$830,314	

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Year	Gold, value	Silver, value	Brick		Magnesite		Manganese	
			M	Value	Tons	Value	Tons	Value
1880	$73,271							
1881	63,000	$31,000						
1882	80,000	15,000						
1883	40,000	5,000						
1884	40,000	5,000						
1885	18,660							
1886	47,175							
1887	53,297							
1888	75,000							
1889	20,410							
1890	5,335							
1891	3,000							
1892	14,191							
1893	150							
1894	26,369							
1895	26,482							
1896	16,635							
1897	37,392							
1898	19,400							
1899	10,000							
1900	[1]21,212							
1901	[1]15,700				100	$600		
1902								
1903	[1]52,869	256						
1904	[1]50,000	265						
1905	[1]50,000	240						
1906	[2]	[2]						
1907	3,364	28						
1908	[2]	[2]	750	$7,000				
1909	[2]	[2]	5,000	50,000				
1910	[1]214,187	[1]604	1,500	8,000				
1911	[4]307,538	[4]1,131	850	5,950				
1912	[1]226,163	[1]1,974	250	2,000				
1913	[5]253,166	[5]671	300	2,400				
1914	[2]	[2]	250	2,500				
1915	[2]	[2]						
1916	[2]	[2]	[2]				160	$2,400
1917	[2]	[2]			3,196	44,350	775	26,925
1918	14,196	592			2,024	18,038	5,753	222,422
1919	[2]	[2]			2,031	20,831	8,921	374,584
1920	142,467	775			4,064	39,435	893	12,973
1921	18,439	136			3,378	33,158	[2]	
1922	[2]	[2]			2,400	35,475	[2]	[2]
1923	174,814	833						
1924	190,019	773					[2]	
1925	171,742	694					[2]	
1926	127,398	411					[2]	
1927	120,238	345					[2]	
1928	195,683	556			[2]			
1929	128,872	344			[2]		[2]	
1930	109,134	208			[2]			
1931	154,443	223			[2]			
1932	152,865	194			[2]			
1933	148,204	241			[2]			
1934	239,158	544			[2]			
1935	293,129	765			[2]			
1936	289,975	766			[2]			
1937	603,645	1,470			[2]			
1938	453,250	861			[2]			
1939	762,685	1,187			[2]			
1940	1,276,240	1,847			[2]		[2]	
1941	891,520	1,646			[2]		[2]	
Totals	[3]$8,628,082	[3]$76,580	[3]8,900	$77,850	[3]17,093	$191,287	[3]16,502	$639,304

[1] Includes Merced County.
[2] See Merced County.
[3] See under 'Unapportioned.'
[4] Includes Merced County production; also dredge yield of Shasta and Trinity counties.
[5] Includes dredge production of Merced and Siskiyou counties.
[6] There was a small production of quicksilver in the '70's and between 1884-1888, but no definite record of amounts.

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STANISLAUS COUNTY, 1880-1941

Mineral paint		Miscellaneous stone, value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
					Quicksilver.[6]
105	$2,310				
375	2,800		20 flasks	$800	Quicksilver.
17	1,800				
152	1,825				
283	2,898				
204	1,769				
192	193				
200	375		79,330 lbs.	12,494	Copper.
200	350		162,400 lbs.	18,676	Copper.
1,370	2,400		116,000 lbs.	15,080	Copper.
200	1,600		7,300 lbs.	931	Copper.
				20	Platinum.
375	2,125				
250	1,720				
250	1,720				
285	2,000	74,000			
285	2,225	225		82,317	Unapportioned, 1900-1909.
40	270				
96	600				
100	600	63,572			
255	1,530	14,482			
52	286	3,096			
[5]		2,250		189,521	Gold, mineral paint, silver, platinum, quicksilver.
507	2,200	17,784		230,638	Chromite, brick, gold, platinum, quicksilver, silver.
[5]		6,240	1,438 tons	29,240	Chromite.
				183,167	Gold, mineral paint, platinum, silver.
498	3,088	38,764	1,352 tons	56,505	Chromite.
				308	Other minerals.
[5]		28,922		[1]165,989	Gold, mineral paint, platinum, silver.
669	7,062	181,262		1,043	Platinum and quicksilver.
[5]		180,697		3,777	Manganese, mineral paint, platinum, quicksilver.
[5]	[5]	299,962		116,730	Gold, manganese ore, mineral paint, platinum, silver.
1,023	10,745	231,965		27,158	Magnesite, manganese ore, platinum.
[5]		118,050		30,296	Magnesite, manganese ore, mineral paint, platinum.
[5]		221,256		21,774	Magnesite, manganese ore, mineral paint, platinum.
[5]		259,806		12,957	Magnesite, mineral paint, platinum.
				12,700	Magnesite, mineral paint, platinum.
[5]		238,067		37,852	Magnesite, mineral paint, platinum.
[5]		233,325		25,694	Clay (pottery), magnesite, manganese, mineral paint, platinum.
		180,379	165 lbs.	8	Lead.
				41,959	Clay (pottery), magnesite.
		87,596		35,019	Clay (pottery), magnesite, platinum.
		55,595	607 lbs.	18	Lead.
		40,888		109,514	Clay (pottery), magnesite, platinum.
		63,337		115,133	Clay (pottery), magnesite, platinum.
		111,912		179,850	Pottery clay and magnesite.
		177,015		223,858	Pottery clay, magnesite, platinum.
		57,147		277,768	Other minerals.
		290,036		101,376	Pottery clay, magnesite, platinum.
		134,582		171,582	Pottery clay, magnesite, platinum.
		61,306		218,812	Pottery clay, magnesite, manganese ore, platinum.
		148,644		284,122	Pottery clay, magnesite, manganese ore, natural gas, platinum.
[7]7,920	[1]54,491	$3,883,393		$3,159,168	

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MINERAL PRODUCTION OF SUTTER COUNTY, 1908-1941

Year	Amount	Value	Substance
1908	5,000 tons	$5,000	Macadam.
1909			
1916	5,733 tons	6,450	Crushed rock.
1917	4,500 tons	5,000	Crushed rock.
1918			
1919			
1920		54	Other minerals.[1]
1921		54	Other minerals.[1]
1922		97	Unapportioned.[1]
1923		97	Unapportioned.[1]
1924		97	Unapportioned.[1]
1925		397	Unapportioned.[1]
1926		397	Unapportioned.[1]
1927		300	Unapportioned.
1928			
1933		11,900	Unapportioned.[1]
1934		3,322	Unapportioned.[1]
1935		357	Natural gas.
1936		17,368	Other minerals.[2]
1937		22,959	Other minerals.[2]
1938		28,973	Other minerals.[2]
1939		68,733	Other minerals.[2]
1940		94,054	Other minerals.[2]
1941		112,848	Other minerals.[2]
Totals		$378,457	

[1] Includes miscellaneous stone and natural gas.
[2] Includes pottery clay and natural gas.

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Year	Gold, value	Chromite		Brick	
		Tons	Value	M	Value
1880-1884	$22,000				
1894		1,680	$12,680		
1895		950	9,025	500	$2,500
1896		56	475		
1897					
1898				200	1,400
1899				300	1,800
1900				325	2,200
1901				300	2,000
1902				500	3,500
1903				600	4,500
1904				500	3,500
1905				650	5,000
1906				700	5,600
1907				400	3,200
1908				400	3,000
1909					
1910				600	3,600
1911					
1912				225	1,300
1913				300	1,800
1914					
1915		[2]		400	2,700
1916		1,896	39,702	[2]	
1917		2,053	41,646		
1918		3,261	152,291		
1919		[2]			
1920					
1921					
1922				[2]	
1923					
1924		[2]		[2]	
1925				[2]	
1926		[2]		[2]	
1927					
1928					
1929		[2]			
1930				[2]	
1931					
1932				[2]	
1933					
1934	1,146				
1935	177				
1936					
1937					
1938	[2]				
1939	31,675				
1940					
1941					
Totals	[1]$54,998	[1]9,896	$255,819	[1]6,800	$47,600

[1] Includes crushed rock, rubble, sand, gravel.
[2] See under "Unapportioned."

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TEHAMA COUNTY, 1850-1941

Mineral water		Salt, value	Miscellaneous stone,[1] value	Miscellaneous and unapportioned		
Gallons	Value			Amount	Value	Substance
10,000	$2,400					
54,000	8,000					
10,000	18,000					
20,000	4,000					
5,000	2,500					
8,000	4,000					
8,000	4,000					
550,000	55,000					
20,000	2,000	$300				
5,000	500	300				
5,000	500	300				
5,000	500					
75	42		$600			
100	100	200				
1,000	500	[2]	750		$752	Chromite and salt.
[2]			11,076		3,575	Brick, granite, mineral water, natura gas.
			2,373			
			2,500		2,800	Other minerals.
			7,500		1,500	Other minerals.
			[2]		26,400	Unapportioned.
			30,520		300	Other minerals.
			[2]		9,388	Brick, miscellaneous stone.
			4,900		1,316	Other minerals.
			26,054		8,400	Brick, chromite.
			[2]		77,183	Brick, miscellaneous stone.
			2,100		8,240	Brick, chromite.
			4,450		900	Other minerals.
			11,945		2,444	Other minerals.
			9,956		4,524	Chromite and sandstone.
			218,300		8,100	Brick and sandstone
			49,407		1,000	Other minerals.
			11,887		2,500	Brick and sandstone.
			30,309		25	Other minerals.
			38,427	3 ozs.	2	Silver.
			11,214			
			100,403			
			65,193			
			[2]		81,431	Gold, platinum, silver, miscellaneous stone.
			44,956	{	46	Silver.
				{	5,417	Other minerals.
			51,880			
			2,925			
[3]701,175	$102,042	[3]$1,100	[3]$739,625		$246,243	

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MINERAL PRODUCTION OF

Year	Gold, value	Silver, value	Quicksilver	
			Flasks	Value
Altoona Mine, before 1875 (estimated)*	[6]	[6]	1,000	$88,000
1875			1,500	126,425
1876			1,979	87,076
1877			1,317	49,129
1878			1,534	50,469
1879			1,919	57,282
1880	$326,693	$142	245	7,595
1881	550,000	1,500		
1882	600,000			
1883	400,000			
1884	529,150	[3]334		
1885	338,148	10		
1886	464,726	219		
1887	553,051	924		
1888	589,000	500		
1889	811,632	640		
1890	1,192,790	259	240	12,600
1891	1,327,787	2,249		
1892	1,446,603	168		
1893	1,122,995			
1894	1,012,666	325		
1895	1,166,745	1,257	3,926	137,410
1896	1,296,330		4,205	139,035
1897	1,078,372	259	838	29,330
1898	859,255	314	4,032	151,200
1899	590,510	1,086	3,076	123,624
1900	571,605	[7]7,935	2,294	105,982
1901	684,683	[1]1,240	1,302	58,668
1902	719,992	550	240	10,251
1903	607,728	2,085	266	11,156
1904	574,814	135	[7]102	3,864
1905	690,844	3,044	389	13,917
1906	560,843	2,981	166	6,059
1907	535,316	2,399	98	3,739
1908	602,944	4,269	90	3,808
1909	520,046	2,302	197	7,915
1910	500,851	1,960	133	5,622
1911	612,149	6,777	44	2,024
1912	723,503	7,494	18	758
1913	431,862	2,119	4	161
1914	743,512	3,374		
1915	441,846	3,470	[6]	
1916	435,493	7,591	[6]	
1917	602,048	10,021	[6]	
1918	444,729	6,912	[6]	
1919	538,494	3,872	[6]	
1920	541,387	3,469	[6]	
1921	437,993	1,390		
1922	182,918	2,432		
1923	617,841	5,816		
1924	422,281	10,934		
1925	424,037	7,724		
1926	483,471	13,276		
1927	409,492	12,326		
1928	402,694	12,258		
1929	352,029	10,269	[6]	
1930	330,003	6,700	[6]	
1931	292,031	532	[6]	

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TRINITY COUNTY, 1875-1941

Platinum		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Ounces	Value		Amount	Value	Substance
			3,620 cu. ft.	$5,000	Granite.
			500 cu. ft.	375	Granite.
			5,750 cu. ft.	4,535	Granite.
			4,838 lbs.	761	Copper.
			6,870 cu. ft.	5,500	Granite.
39	$468				
13	200		100 cu. ft.	75	Granite.
11	275				
26	450				
7	130				
"					
"					
"				111,307	Unapportioned, 1900-1909.
"					
"					
"		$2,000			
"		1,000			
5	151			245	Mineral water.
13	435	900	120 gals.	360	Mineral water.
				52,500	Other minerals.
113	5,161	1,000		397,316	Chromite, copper, manganese, mineral water, quicksilver.
50	3,283	7,718	242 tons,	6,325	Chromite.
				358,447	Copper, manganese, mineral water, quicksilver.
41	3,136	1,513	1,814 tons,	75,660	Chromite.
				175,574	Copper, mineral water, quicksilver.
(4) (4)		11,839		17,444	Copper, mineral water, platinum, quicksilver.
fine ounces					
37	6,612	8,799		1,838	Other minerals.
27	3,260	"		14,239	Quicksilver, miscellaneous stone.
12	1,223	5,677		5,687	
18	2,050	3,000	329,706 lbs.	48,467	Copper.
11	1,839	2,240	550,000 lbs.	72,050	Copper.
26	3,081	5,000	439,766 lbs.	62,447	Copper.
28	2,832		760,140 lbs.	106,420	Copper.
				4,000	Other mineral
		32,250	770,882 lbs.	100,986	Copper.
				800	Other minerals.
"		12,084	660,142 lbs.	95,060	Copper.
				8,084	Chromite and platinum
		41,867	615,579 lbs.	108,342	Copper.
				13,367	Chromite, coal, quicksilver.
"		4,238	588,574 lbs.	76,514	Copper.
				19,878	Coal, platinum, quicksilver.
31	993	20,246		14,720	Coal, quicksilver.

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Year	Gold, value	Silver, value	Quicksilver	
			Flasks	Value
1932	$294,297	$608	[4]	
1933	345,851	768	[4]	
1934	574,681	1,640	[4]	
1935	727,787	2,506	[4]	
1936	708,715	2,251	[4]	
1937	703,780	2,099	[4]	
1938	1,451,345	2,992	[4]	
1939	1,488,550	3,176	[4]	
1940	1,730,155	4,222	[4]	
1941	1,500,870	3,408	[4]	
Totals	$42,221,963	$201,514	[5]31,154	[5]$1,293,099

[1] Bradley, W. W., Quicksilver resources of California; Cal. State Min. Bur., Bull. 78, p. 200, 1918.
[2] Includes crushed rock, rubble, sand, gravel.
[3] Lawyer, A. M., in 'Production of Precious Metals in U. S.'; Report of Director of Mint, 1884, p. 175, 1885.
[4] Recalculated to 'commercial' from 'coining value' as originally published.
[5] See under 'Unapportioned.'
[6] The metal contained in the 1919 product was 38% iridium and 62% platinum.
[7] No county segregated figures for gold and silver available for years earlier than 1880.
[8] Flasks of 76½ pounds previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.

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TRINITY COUNTY, 1875-1941—Continued

Platinum		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Ounces	Value		Amount	Value	Substance
19	$473	$17,160	295 lbs.	$8	Lead.
				12,729	Coal, quicksilver.
"	"	2,375		10,509	Coal, lead, platinum, quicksilver.
"	"	62,522	359 lbs.	29	Copper.
				11,748	Coal, platinum, quicksilver.
"	"	3,803		11,090	Coal, copper, lead, quicksilver.
"	"	7,867		5,276	Coal, copper, lead, platinum, quicksilver.
155	7,052	"		8,359	Coal, quicksilver, miscellaneous stone.
"	"	36,456		2,339	Coal, platinum.
"		16,177		7,048	Copper, platinum, quicksilver.
"		"		37,950	Copper, lead, platinum, quicksilver, miscellaneous stone.
"		20,722		31,365	Chromite, copper, lead, coal, manganese ore, platinum, quicksilver.
682	$43,104	$328,453		$2,107,773	

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Year	Gold, value	Silver, value	Brick		Gems, value	Granite	
			M	Value		Cubic feet	Value
1880	$1,125	$526					
1881	8,181	36					
1882	5,000	2,000					
1883	4,000	1,000					
1884	70,000						
1885	7,500						
1886	6,900	50					
1887	15,640	167					
1888	25,000						
1889	39,340	250					
1890	43,019						
1891	15,095						
1892	24,355	11					
1893	12,818						
1894						4,668	$10,000
1895	16,320					3,000	2,500
1896	20,092					2,800	4,700
1897	12,830	214				3,600	8,000
1898	12,400		300	$2,000		700	1,500
1899	13,610		600	4,200		1,200	3,000
1900	10,445	433	650	6,100		1,500	3,000
1901	14,616	100	1,600	8,600		9,000	18,000
1902	11,648		4,500	27,000	$500	1,790	4,000
1903	9,215		1,500	9,500	500	3,000	2,260
1904	1,100		1,250	10,000		7,000	16,000
1905	2,300	13	2,000	16,000	5,000	7,000	9,000
1906	20		1,500	12,000	209,790	7,000	9,000
1907			2,500	20,000	26,206		
1908			2,250	18,000	62,250		
1909			6,620	42,400	58,000		
1910			8,195	64,000	104,000	700	1,500
1911			10,225	81,000	20,000		
1912			10,900	70,500	5,350		
1913			6,000	45,000	1,500		
1914			6,838	47,507			
1915			5,520	33,364			
1916			6,330	48,500			[illegible]
1917			6,771	112,938			[illegible]
1918			[illegible]		[illegible]		[illegible]
1919			and tile	34,978			[illegible]
1920			[illegible]				
1921							[illegible]
1922			[illegible]				[illegible]
1923			[illegible]				[illegible]
1924			[illegible]				[illegible]
1925			[illegible]				62,260

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TULARE COUNTY, 1880-1941

Magnesite		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
			80 tons	$960	Limestone.
			1,000 bbls.	1,500	Lime.
200	$1,500		22 tons	88	Gypsum.
3,511	28,210				
2,450	19,250				
1,300	19,600	$100			
2,800	9,100			50,108	Unapportioned, 1900-1909.
2,380	21,420		400 tons	2,200	Gypsum.
6,567	52,642				
6,468	47,200		2,803 lbs.	360	Copper.
				185	Natural gas.
7,110	35,550		2,000 M cu.ft.	1,000	Natural gas.
7,763	57,335				
6,684	66,840		100 cu. ft.	200	Marble.
			80 tons	200	Quarts.
7,858	62,864	4,350	392 cu. ft.	796	Marble.
			1,429 tons	5,050	Feldspar.
			1,250 tons	2,400	Quarts.
9,650	96,500	1,750	2,830 tons	13,065	Feldspar.
			6 cu. ft.	30	Marble.
			1,349 tons	1,888	Limestone.
11,574	104,166	36,851	1,800 tons	6,500	Feldspar.
				1,830	Chromite and silica.
87,606	737,130	82,255	3,435 tons	42,555	Chromite.
			1,422 lbs.	350	Copper.
				36,410	Feldspar, granite, limestone, marble, silica.
			450 tons	11,000	Chromite.
136,562	1,238,853	75,594	240 tons	1,580	Feldspar.
				60,023	Building tile, copper, graphite, limestone, talc.
			600 tons	24,000	Chromite.
			444 tons	2,928	Feldspar.
28,826	269,748	125,407	8,400 tons	32,400	Limestone.
			204 tons	1,143	Silica.
				71,782	Brick, gems, granite, soapstone, talc, tile.
			10,347 tons	46,388	Limestone.
18,765	186,601	10,811	700 M cu.ft.	295	Natural gas.
				51,928	Chromite, feldspar, granite.
35,305	394,169	8,465	400 M cu.ft.	195	Natural gas.
				190,467	Brick, feldspar, granite, limestone.
			10,030 tons	40,090	Limestone.
11,454	125,594	284,122	380 M cu.ft.	190	Natural gas.
				102,238	Brick and granite.
17,223	181,842	151,000	380 M	190	Natural gas.
				189,662	Brick, tile, granite, limestone.
			380 M	190	Natural gas.
24,058	298,272	1,990	15,500 tons	57,500	Limestone.
				108,607	Brick, granite.
21,203	271,830	80,411	1,080 M	540	Natural gas.
				145,893	Brick, hollow tile, granite, limestone.
			280 M	175	Natural gas.
18,150	245,557	47,176	13,300	43,900	Limestone.
				27,911	Brick, lime.

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Year	Gold, value	Silver, value	Brick		Gems, value	Granite	
			M	Value		Cubic feet	Value
1926			[1]				[1]
1927			[1]				[1]
1928			[1]		[1]		[1]
1929			[1]				[1]
1930	$36	$311			[1]		[1]
1931	244	2	[1]		[1]		[1]
1932	141	1	[1]		[1]		[1]
1933	2,152	14	[1]				[1]
1934	5,114	94	[1]		[1]		
1935	952	9	[1]				[1]
1936	840	46	[1]				[1]
1937	1,050	9	[1]		[1]		[1]
1938	1,400	12	[1]				
1939	3,255	30	[1]				
1940	560	5	[1]				
1941	2,625	40	[1]				
Totals	$420,938	$5,373		[2]$713,587	[2]$493,096		[2]$154,720

[1] Includes crushed rock, rubble, sand, gravel.
[2] See under 'Unapportioned.'

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TULARE COUNTY, 1880-1941—Continued

Magnesite		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Tons	Value		Amount	Value	Substance
			593 tons	$7,709	Lime.
13,378	$138,347	$73,881	18,000 tons	70,000	Limestone.
				107,983	Brick, hollow tile, granite, natural gas.
	[2]	15,082		459,091	Brick, hollow tile, granite, lime, limestone, magnesite.
	[2]	108,419		336,947	Brick, gems, granite, lime, limestone, magnesite.
	[2]	24,932		262,949	Brick, granite, limestone, magnesite.
[2]		74,500		178,297	Gems, granite, limestone, magnesite, petroleum.
[2]		75,778		121,092	Barite, brick and building tile, gems, granite, magnesite, limestone, petroleum.
		72,541		43,391	Barite, brick and building tile, copper, gems, granite, lime, petroleum, tungsten.
		136,859		39,588	Brick, granite, petroleum, tungsten.
			4,404 lbs.	32	Copper.
		139,875	2,697 lbs.	100	Lead.
				39,259	Barite, brick, gems, petroleum, tungsten.
		27,607		25,343	Barite, brick, granite, natural gas, petroleum.
			9,276 lbs.	427	Lead.
		174,273		34,382	Brick, copper, zinc, granite, natural gas, petroleum.
		136,539		177,354	Brick and building tile, chromite, gems, natural gas, petroleum, tungsten ore.
		151,788		119,999	Brick and hollow tile, natural gas, petroleum, tungsten ore.
				117,870	Natural gas.
		46,983		284,409	Brick and hollow tile, petroleum, tungsten ore.
		14,164		205,336	Brick and hollow tile, pottery clay, natural gas, tungsten ore.
		101,470		168,526	Barite, brick and hollow tile, natural gas, petroleum, tungsten ore.,
[3]488,845	$4,710,120	$2,133,973		$4,178,974	

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Year	Gold, value	Silver, value	Lime		Limestone	
			Barrels	Value	Tons	Value
1880	$461,861	$1,071				
1881	500,000	1,000				
1882	400,000					
1883	320,000					
1884	310,000					
1885	320,903	1,473				
1886	432,438	1,551				
1887	504,662	3,166				
1888	475,000	3,500				
1889	446,300	543				
1890	1,500,629	13,062				
1891	1,384,950	139				
1892	1,092,549	911				
1893	354,734	1,329				
1894	547,448	1,072				
1895	666,754	313				
1896	1,070,141	328				
1897	1,809,572	1,696				
1898	1,734,953	15,582				
1899	1,635,769	15,111				
1900	1,596,891	62,367				
1901	1,670,368	39,787				
1902	1,791,829	6,580				
1903	1,732,572	13,989	1,600	$1,600		
1904	1,563,907	12,963				
1905	1,291,726	21,348	500	1,000		
1906	1,039,675	8,476	500	1,000		
1907	806,875	6,453	110,000	125,000		
1908	798,752	11,732	60,000	69,500	1,233	$6,500
1909	925,703	4,384	60,000	60,000	15,057	28,942
1910	615,626	5,754	78,300	78,300	3,600	10,400
1911	1,093,484	13,243	75,000	70,000	4,319	13,609
1912	1,113,291	25,146	117,450	121,250	11,554	20,099
1913	974,409	24,381	75,000	85,000	12,446	20,676
1914	940,793	12,017	63,331	38,000	16,707	21,907
1915	1,058,103	13,480	[1]		8,859	11,349
1916	868,237	17,039	[1]		3,137	5,132
1917	321,085	7,808	[1]		3,287	6,481
1918	274,328	21,425	[1]		3,064	5,600
1919	471,021	11,076	[1]		[2]	
1920	254,569	6,007	[1]		7,494	15,288
1921	96,026	2,505	[1]		3,650	9,475
1922	222,366	2,976				
1923	261,936	2,801			3,140	7,680
1924	255,994	1,106			8,515	19,983
1925	155,592	614				[3]268,000
1926	119,873	1,119				
1927	40,209	302			[1]	
1928	36,807	185	[1]		[1]	
1929	70,957	2,735	[1]		[1]	

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TUOLUMNE COUNTY, 1880-1941

Marble		Copper		Miscellaneous stone[6], value	Miscellaneous and unapportioned[7]		
Cubic feet	Value	Pounds	Value		Amount	Value	Substance
					800 M	$2,288	Brick.
						1,301	Unapportioned, 1900-1909.
					400 lbs.	16	Lead.
7,000	$14,000	155,826	$17,920				
11,550	28,875				10,367 cu. ft.	14,020	Granite.
11,500	28,750				9,700 cu. ft.	9,700	Granite.
11,000	66,000				9,700 cu. ft.	9,700	Granite.
23,000	46,000				9,700 cu. ft. 197 tons	9,700 1,379	Granite. Chromite.
22,030	60,120						
18,503	47,165	140,000					
27,600	107,400	9,086	1,154		30 tons	180	Chromite.
17,360	45,400				2,052 lbs.	111	Lead.
18,966	50,398						
27,720	73,920						
37,312	93,726	893	138		893 lbs.	53	Lead.
21,830	38,202	45	6		89 lbs.	3	Lead.
					352 tons	2,352	Chromite.
[7]		27,667	4,842	$1,900	1,779 lbs.	84	Lead.
						79,328	Dolomite, lime, marble.
					285 tons	4,556	Chromite.
[7]		1,797	442	1,500	873 lbs.	60	Lead.
						107,296	Dolomite, lime, magnesite, marble.
					2,680 tons	54,290	Chromite.
[7]		32,840	8 960	3,800	997 lbs.	86	Lead.
						108,758	Dolomite, lime, magnesite, marble.
					4,269 tons	168,693	Chromite.
[7]		35,127	8,676	1,700		121,806	Lime, manganese, marble.
						110,746	Lime and limestone.
[7]		[7]		2,700		78,950	Chromite, copper, granite, marble.
[7]				28,696		209,354	Dolomite, lime, marble, platinum.
[7]				229,185		217,292	Dolomite, granite, lime, marble.
				246,460		293,136	Other minerals.[1]
				9,800		388,145	Other minerals.[2]
				12,500		339,573	Other minerals.[3]
				29,751		113,305	Other minerals.[4]
		2,332	326	56,097		438,583	Other minerals.[5]
[7]				31,416		360,489	Limestone, marble, slate.
[7]				9,090		330,196	Dolomite, lime, limestone, marble, pumice, slate.
[7]		82,383	14,499	11,415		271,914	Dolomite, lead, lime, limestone, marble, slate.

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Year	Gold, value	Silver, value	Lime		Limestone	
			Barrels	Value	Tons	Value
1930	$67,691	$300	[7]		[7]	
1931	77,902	180	[7]		[7]	
1932	93,939	214	[7]		[7]	
1933	107,736	280	[7]		[7]	
1934	269,256	1,147	[7]		[7]	
1935	286,062	1,979	[7]		[7]	
1936	476,105	3,028	[7]		[7]	
1937	690,585	6,155	[7]		[7]	
1938	854,490	4,544	[7]		[7]	
1939	422,240	2,059	[7]		[7]	
1940	767,620	3,496	[7]		19,904	$46,122
1941	804,895	4,107	[7]		[7]	
Totals	$43,350,188	$449,134	[7]641,681	$650,650	[7]125,966	$527,243

* Includes crushed rock, macadam, rubble, sand, gravel.
[1] Includes mineral paint and sandstone.
[2] Includes granite, lime, magnesite, marble.
[3] Includes clay, dolomite, granite, lime, marble.
[4] Includes lime.
[5] Includes dolomite, granite, marble.
[6] Includes granite, lead, lime, limestone, magnesite, marble, silica.
[7] See under "Unapportioned."

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TUOLUMNE COUNTY, 1850-1941—Continued

Marble		Copper		Miscellaneous stone[6], value	Miscellaneous and unapportioned[7]		
Cubic feet	Value	Pounds	Value		Amount	Value	Substance
[7]		4,566	$593	[7]	317 lbs.	$16	Lead.
						249,722	Lime, limestone, marble, slate, miscellaneous stone.
[7]		[7]		100,785		198,290	Chromite, copper, lime, limestone, marble, slate, soapstone.
[7]				87,814		118,491	Chromite, lime, limestone, marble, slate, soapstone.
[7]				11,020		145,943	Chromite, lime, limestone, marble, slate.
[7]				5,578		147,607	Chromite, lime, limestone, marble, slate.
[7]		[7]		39,350		147,219	Copper, lead, lime, limestone, marble, slate.
[7]		10,082	927	71,968		171,441	Lead, lime, limestone, marble, slate.
[7]		6,157	745	130,747		183,948	Lead, lime, limestone, marble, slate.
		2,899	285	84,568		186,377	Granite, lead, lime, limestone, slate.
[7]		9,860	1,025	25,277		219,243	Chromite, dolomite, lead, granite, lime, limestone, marble, platinum, slate.
[7]		4,649	525	60,620		154,194	Lead, lime, marble, slate, soapstone.
[7]		9,177	1,083	132,318		200,502	Chromite, lead, dolomite, lime, limestone, magnesite, marble, slate.
[7]255,371	$699,756	[7]395,386	$62,151	[7]$1,426,100		$5,970,486	

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Year	Gold, value	Petroleum		Natural gas		Asphalt and bituminous brick		Brick	
		Barrels	Value	M Cu. Ft.	Value	Tons	Value	M	Value
1880	$354	[1]							
1881	600								
1882									
1883									
1884									
1885									
1886									
1887									
1888									
1889									
1890	2,468								
1891	1,715								
1892									
1893									
1894		290,913	$367,822			248	$4,800		
1895		244,624	244,624			175	3,500		
1896		248,000	272,800						
1897		368,282	368,282						
1898		427,000	571,000			4,105	80,775	286	$2,228
1899	3,990	496,200	496,200			5,188	103,760	375	3,000
1900	2,562	443,000	398,700			1,466	31,670	230	1,700
1901	4,183	472,057	236,028			2,073	30,945		
1902	2,012	475,000	455,000			37	370		
1903	1,087	542,902	517,611			1,114	13,368	1,380	12,900
1904	2,700	518,000	465,682	1,800	$2,700	3,169	38,028		
1905	1,200	375,522	236,578	3,831	5,000	3,000	30,000	1,300	10,400
1906	[1]	311,000	155,500	3,500	1,000	3,700	37,000	1,675	11,650
1907		352,224	211,334	1,825	2,278			1,600	12,800
1908		289,625	217,219	3,625	4,531			200	1,500
1909		344,419	223,872	1,721	2,151			1,275	7,625
1910		492,147	319,898	545	681			1,190	36,945
1911		499,082	349,777	[2]29,580	2,958			900	5,100
1912		662,300	584,811	[2]55,068	4,163			550	3,575
1913		899,007	907,997	62,200	6,220			1,023	6,085
1914		943,929	991,125	100,000	6,000	[3]		449	3,102
1915		1,017,220	869,723	491,879	29,670			200	2,500
1916		943,499	985,956	806,540	133,867			[1]	
1917		996,501	1,313,388	1,033,564	152,550			[1]	
1918		1,339,342	1,982,226	858,457	150,885				
1919		1,685,073	2,755,094	1,038,574	252,240			[1]	
1920		1,989,681	4,988,130	1,521,448	214,280				
1921		2,167,326	5,869,119	2,127,476	360,443			[1]	
1922		2,933,685	5,236,628	3,583,818	536,502				
1923		3,610,794	4,109,084	4,162,318	470,261				
1924		3,958,010	5,279,985	5,995,760	633,352				
1925		9,221,846	15,769,357	20,144,646	1,953,163				
1926		16,994,275	25,695,344	41,559,144	4,080,040				
1927		19,996,841	23,536,282	71,036,201	6,951,273				31,832
1928		22,143,318	24,311,149	67,058,513	6,196,549			[1]	
1929	473	24,003,969	27,602,164	77,293,145	5,812,729			[1]	
1930	221	19,983,341	27,896,744	54,741,670	3,749,829			[1]	
1931	293	17,245,113	13,297,707	53,643,509	1,875,264				
1932	887	14,401,476	12,277,793	40,432,752	2,393,920				
1933	1,193	14,793,286	12,398,253	39,539,382	1,957,634				

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VENTURA COUNTY, 1880-1941

Pottery clay		Sandstone		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Tons	Value	Cubic feet	Value		Amount	Value	Substance
		16,200	$16,500				
		33,200	20,000				
					250 tons	$6,500	Borax.
		12,500	6,250	$35,279			
		4,200	2,650	16,764	3,000 tons	60,000	Borax.
						4	Silver.
		3,200	1,600	22,500	50 tons	2,500	Mica.
		1,750	900	25,100	3,500 tons	140,000	Borax.
					50 tons	3,800	Mica.
		6,000	3,500	31,227	50 tons	3,000	Mica.
30	$45	2,300	1,380	60,490			
		1,320	792				
				20,880			
560	1,680			15,406			
				144,226		830,853	Unapportioned, 1900-1909.
		900	450	35,000			
1,900	1,900	4,658	2,325	750			
1,000	1,000	4,600	1,850				
3,000	2,990	300	150			1,530	Unapportioned.
		1,195	502				
				2,674		200	Other minerals.
[2]		[2]		14,200		1,407	Brick, clay, sandstone.
[2]		[2]		30,000		2,072	Brick and sandstone.
		[2]		52,900		300	Other minerals.
[2]		[2]		5,000		4,500	Clay and clay products.
						190	Other minerals.
[2]		[2]		25,265		500	Mineral paint and sandstone.
				11,250		3,985	Clay and clay products.
						472	Mineral paint and sandstone.
				62,888		1,060	Mineral paint and sandstone.
				88,211		12,128	Mineral paint and sandstone.
		[2]		173,337		2,720	Limestone.
				131,200			
373,000	93,250			339,435		300	Other minerals.
354,418	63,120			412,872			
238,914	238,910			332,195		37,872	Brick, building tile and granite.
						76,795	Brick and building tile.
232,886	197,152			255,183		13,500	Granite (flagstone).
					6 oz.	3	Silver.
						55,900	Unapportioned.
[2]				180,322	5 oz.	2	Silver.
						124,934	Brick, pottery clay, granite, limestone (shells).
61,300	17,418			184,483	9 fine ozs.	3	Silver.
						80,559	Brick and hollow building tile, granite (flagstone), limestone (marl).
9,774	1,683			144,515	16 fine ozs.	5	Silver.
						36,803	Brick and hollow building tile, granite (flagstone), limestone (marl), sandstone.
					1,631 lbs.	64	Lead.
[2]				164,999	54 fine ozs.	19	Silver.
						35,534	Brick, clay (pottery), granite, limestone (marl).

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Year	Gold, value	Petroleum		Natural gas		Asphalt and bituminous brick		Brick	
		Barrels	Value	M Cu. Ft.	Value	Tons	Value	M	Value
1934	$4,435	12,007,550	$11,331,335	40,767,122	$2,032,849				
1935	6,783	13,333,298	12,016,509	39,278,994	2,036,287			[3]	
1936	2,345	15,569,523	15,118,061	40,545,785	2,125,746			[3]	
1937	1,295	16,720,713	17,562,688	44,102,839	1,457,709				
1938	665	16,979,962	18,707,689	43,239,220	2,900,127				
1939	[3]	16,866,086	18,530,769	41,098,418	2,038,936				
1940	1,540	17,038,470	18,525,316	38,081,099	1,982,242				
1941	665	19,431,322	19,221,193	38,608,979	1,913,657				
Totals	$43,666	317,126,753	$355,740,246	813,054,947	$54,429,686	24,275	$374,216		$152,942

[1] Includes crushed rock, rubble, sand, gravel.
[2] Commercial production of petroleum in Ventura County began at least as early as 1874, in the Sulphur Mountain district, but detailed county segregations are not available for the early years.
[3] See under 'Unapportioned.'
[4] Quantity estimated, as only values given in reports of those years.

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VENTURA COUNTY, 1880-1941—Continued

Pottery clay		Sandstone		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
Tons	Value	Cubic feet	Value		Amount	Value	Substance
[2]				$291,845	10 fine ozs.	$6	Silver.
						28,279	Brick and hollow building tile, clay (pottery and oil well drilling), granite, limestone (marl).
[2]				166,553		32	Silver.
						10,782	Brick, pottery clay, copper, granite (tuff).
[2]				361,916		3	Silver.
						23,809	Brick, oil-2311 drilling mud.
[2]				200,861		2	Silver.
						8,165	Oil-well drilling mud, granite (tuff).
[2]				256,199		3	Silver.
						11,733	Clay (pottery) and drilling mud, granite (tuff).
[2]				179,844		23,665	Clay (pottery and drilling mud), gold, granite (tuff), silver.
[2]				128,244		5	Silver.
						10,534	Oil-well drilling mud, granite (tuff).
				204,368		4	Silver.
						92,668	Oil-well drilling mud, gypsum, sandstone.
[1]1,276,782	$703,856	[2]92,323	$58,849	$4,809,201		$1,749,704	

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MINERAL PRODUCTION OF YOLO COUNTY, 1873-1941

Year	Quicksilver		Sandstone		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
	Flasks	Value	Cubic feet	Value		Amount	Value	Substance
1873	[2]995	$79,928						
1874	3,000	315,540						
1875								
1876	965	42,460						
1877	1,516	56,547						
1878	1,640	53,956						
1879	1,110	33,134						
1880	422	13,082						
1881								
1894			2,500	$1,000				
1895			542	1,873				
1896			252	378				
1897								
1898			264	384				
1899			264	384				
1900			908	1,760				
1901			1,540	2,300				
1902			328	450				
1903			280	144				
1904			180	720				
1905			175	200				
1906			160	204				
1907			250	350				
1908			140	1,150				
1909								
1910								
1911								
1912								
1913								
1914	15	736						
1915	[3]				$1,200		$840	Other minerals.
1916					300			
1917	[3]				4,300		1,261	Other minerals.
1918	[3]				17,915		3,300	Other minerals.
1919	[3]				5,600		19,866	Other minerals.
1920					9,472			
1921					14,829			
1922					[3]		13,431	Unapportioned.
1923					[3]		16,957	Unapportioned.
1924					[3]		15,800	Unapportioned.
1925					23,060			
1926					20,560			
1927					17,895			
1928					17,200			
1929					14,400			
1930					2,700			
1931					21,500			
1932					21,625			
1933					16,694		129	Gold.
1934					37,850	1 fine oz.	1	Silver.
							176	Gold.
1935					33,950		715	Gold.
1936					71,434		175	Other minerals.
1937					40,765		1,330	Gold.
							4	Silver.
							2,072	Other minerals.
1938	[3]				44,598		3,634	Natural gas, quicksilver.
1939	[3]				61,057		2,087	Natural gas, quicksilver.
1940	[3]				24,208		85,612	Natural gas, quicksilver.
1941	[3]				130,085		151,218	Natural gas, quicksilver.
Totals	[2]9,663	$595,383	7,783	$11,297	[3]$653,197		$318,008	

[1] Includes crushed rock, sand, gravel.
[2] Flasks of 76½ pounds, previous to June, 1904; of 75 pounds thence, through 1927; of 76 pounds since January, 1928.
[3] See under 'Unapportioned.'

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MINERAL PRODUCTION OF YUBA COUNTY, 1880-1941

Year	Gold, value	Silver, value	Platinum		Miscellaneous stone[1], value	Miscellaneous and unapportioned		
			Ounces	Value		Amount	Value	Substance
1880	$943,860	$438						
1881	800,000	1,300						
1882	750,000							
1883	455,000							
1884	250,000							
1885	207,449							
1886	149,203							
1887	162,426							
1888	150,000							
1889	112,053	115						
1890	141,781							
1891	37,576							
1892	44,218							
1893	30,839							
1894	107,480							
1895	111,482							
1896	171,688							
1897	141,638							
1898	166,865							
1899	189,927	12						
1900	280,366	[2]2,041						
1901	188,908	[2]393						
1902	155,630	2						
1903	125,830	41						
1904	139,528					400 M 375 tons,	$3,000 750	Brick. Pottery clay.
1905	324,135	369				400 tons, 2,000 gals.	80 800	Pottery clay. Mineral water.
1906	[3]	[3]				2,000 gals.	800	Mineral water.
1907	1,766,770	6,167				1,800 gals.	720	Mineral water.
1908	2,034,486	9,997			$5,570	1,000 M	10,000	Brick.
1909	2,469,865	4,156			5,650	550 M [3]	6,600 568,564	Brick. Unapportioned, 1900-1909.
1910	3,204,273	5,372						
1911	2,997,072	5,299			9,318			
1912	2,753,408	6,198			15,526			
1913	2,491,505	7,571			8,063			
1914	2,800,713	5,295	74	$2,377	14,895			
1915	2,703,710	5,254	132	4,174	149,292			
1916	3,167,723	5,934	314	14,301	42,685	4,817 lbs. [3]	1,185 6,000	Copper. Other minerals.
1917	3,667,673	6,591	149	8,869	28,863			
1918	3,767,933	13,796	189	12,930	43,338		6,888	Other minerals.
1919	4,195,732	12,276	[4]125	13,098	40,439			
1920	3,467,769	16,502	113	14,395	74,943		40	Other minerals.
1921	4,738,248	26,135	179	14,396	73,387		100	Other minerals.
1922	2,492,948	8,222	115	11,077	75,969		100	Other minerals.
1923	3,150,405	6,760	158	16,974	216,890		100	Other minerals.
1924	1,995,434	4,461	73	8,773	181,113		100	Other minerals.
1925	2,570,630	6,400	[3]		137,288		7,276	Natural gas, platinum.
1926	2,769,703	6,398	[3]		133,298		11,695	Natural gas, platinum.
1927	3,468,201	6,743			198,688		6,000	Other minerals.
1928	2,304,377	4,910	[3]		202,708		17,081	Other minerals.
1929	1,456,039	2,648	[3]		364,326		7,358	Other minerals.
1930	968,814	1,255			[3]		48,330	Other minerals.
1931	991,976	970	[3]		[3]		29,880	Platinum and miscellaneous stone.
1932	960,749	915			27,485			
1933	1,117,844	1,179			31,930		9	Unapportioned.
1934	1,911,960	2,938	[3]		31,099		5,049	Other minerals.
1935	1,806,355	2,696			32,163		7	Other minerals.
1936	2,847,530	3,460	[3]		37,922		4,911	Copper, platinum.
1937	2,495,155	3,666			85,695		2,272	Other minerals.
1938	2,461,935	5,397			163,628		2,178	Other minerals.
1939	3,037,965	6,224			147,780		87	Other minerals.
1940	3,885,875	7,345			134,819		7,575	Other minerals.
1941	3,112,305	3,895			146,038		3,749	Other minerals.
Totals	$98,370,962	$227,736	[3]1,621	$121,364	$2,860,988		$759,284	

[1] Includes crushed rock, sand, gravel.
[2] Recalculated to 'commercial' from 'coining value' as originally published.
[3] See under 'Unapportioned.'
[4] Includes some palladium.

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CHAPTER IX

DIRECTORY OF PRODUCERS OF METALLIC AND NON-METALLIC MINERALS IN CALIFORNIA 1941

NOTE.—The producers of natural gas and petroleum will be found in the quarterly Summary of Operations, California Oil Fields, for October, November, and December, 1941 (Vol. 27, No. 2).

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ANTIMONY

Operator	Address	Location of mine
Inyo County		
Bishop Antimony Mining Co., c/o R. S. Beatty, Jr.	Box 326, Bishop	Bishop
C. D. Shamel	409 Golden West St., Temple City	
Kern County		
W. B. Truslon	1350 S. Margo St., Los Angeles	
San Bernardino County		
H. E. Lee	630 S. Bonnie Brae, Los Angeles	
Minerals Recovery Co.	1703 Trueman St., San Fernando	
Mountain View Association	536 Anderson Bldg., San Bernardino	

ASBESTOS

Operator	Product	Address	Location of mine
Inyo County			
R. B. McIlroy	b	Star Rt., Box 291, Lone Pine	Lone Pine
Napa County			
Kohler & Chase	a	26 O'Farrell St., San Francisco	Steel Canyon

a. Chrysotile short fiber. b. Tremolite.

BARYTES

Operator	Address	Location of mine
Mariposa County		
Baroid Sales Division, National Lead Co.	830 Ducommun St., Los Angeles	El Portal
Nevada County		
Industrial Minerals & Chemical Co., Spanish Mine	836 Gilman St., Berkeley	Washington
Tulare County		
Z. E. Page	129 Honolulu St., Lindsay	Lindsay

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BENTONITE (FULLER'S EARTH)

Operator	Address	Location of pit
Inyo County		
W. R. Cantley	Olancha	Olancha
Coen Companies, Inc.	711 Gibbons St., Los Angeles	Death Valley
Kern County		
Filtrol Co.	1755 Downey Rd., Los Angeles	Tehachapi
Muroc Clay Co.	5525 Randolph St., Maywood	Muroc
San Bernardino County		
Baroid Sales Division, National Lead Co.	830 Ducommun St., Los Angeles	Hector
Kennedy Minerals Co.	2550 E. Olympic Blvd., Los Angeles	
Pacific Bentonite Mine, Louis Martines	Box 374, Red Mountain	Red Mountain
Red Ball Mud & Chemical Co.	111 W. 7th St., Los Angeles	Barstow

BITUMINOUS ROCK

Operator	Address	Location of mine
Santa Barbara County		
Higgins Quarry, D. A. Sattler, Lessee	856 Arguello Rd., Santa Barbara	Carpinteria
Santa Cruz County		
Calrock Asphalt Co.	525 Market St., San Francisco	Majors

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BORATES

Operator	Address	Location of property
Inyo County		
Pacific Alkali Co.	1209 Pacific Mutual Bldg., Los Angeles	Bartlett
United States Borax Co.	510 W. 6th St., Los Angeles	Death Valley
Kern County		
Pacific Coast Borax Co.	510 W. 6th St., Los Angeles	Kramer
San Bernardino County		
American Potash and Chemical Corp.	Trona	Trona
West End Chemical Co.	Latham Square Bldg., Oakland	West End

BROMINE

Operator	Address	Location of property
Alameda County		
Westvaco Chlorine Prod. Corp.	Newark	Newark
San Bernardino County		
American Potash & Chem. Co.	Trona	Trona
San Diego County		
Westvaco Chlorine Prod. Corp.	Newark	San Diego

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CALCIUM CHLORIDE

Operator	Address	Location of mine
Imperial County		
Mullet Island Salt Works	Niland	Niland
San Bernardino County		
California Rock Salt Co.	2465 Hunter St., Los Angeles	Amboy

CALCIUM SILICATE

Kern County		
Johns-Manville Product Corp.	Box 198, Long Beach	Code

CARBON DIOXIDE GAS

Operator	Address	Location of wells
Imperial County		
National Dry Ice Co.	1225 E. 8th St., Los Angeles	Niland
Natural Carbonic Prod., Inc.	748 E. Washington Blvd., Los Angeles	Niland
Mendocino County		
Caldri Ice Corp.	1168 Battery St., San Francisco	Hopland

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Operator	Address	Location of mill
Calaveras County		
Calaveras Cement Co.	315 Montgomery St., San Francisco	San Andreas
Contra Costa County		
Henry Cowell Lime and Cement Co.	2 Market St., San Francisco	Cowell
Kern County		
Monolith Portland Cement Co.	Bartlett Bldg., Los Angeles	Monolith
Los Angeles County		
Blue Diamond Corp.	1650 S. Alameda St., Los Angeles	Los Angeles
Merced County		
Yosemite Portland Cement Co.	Merced	Merced
Riverside County		
Riverside Cement Co.	621 S. Hope St., Los Angeles	Riverside
San Benito County		
Pacific Portland Cement Co.	417 Montgomery St., San Francisco	San Juan
San Bernardino County		
California Portland Cement Co.	601 W. Fifth St., Los Angeles	Colton
Southwestern Portland Cement Co.	503 Roosevelt Bldg., Los Angeles	Victorville
San Mateo County		
Pacific Portland Cement Co.	417 Montgomery St., San Francisco	Redwood City
Santa Clara County		
The Permanente Corp.	Box 29, San Jose	Permanente
Santa Cruz County		
Santa Cruz Portland Cement Co.	Crocker Bldg., San Francisco	Davenport

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CHROMITE

Operator	Address	Location of mine
Butte County		
B. F. Clark*	Rt. 1, Oroville	French Creek
Calaveras County		
Chas. Gillis	Rt. 1, Sonora	Sonora
Del Norte County		
C. H. Bennett	Crescent City	Crescent City
Eugene Brown, High Plateau Mine	O'Brien, Oregon	Crescent City
C. H. McClendon, French Hill Mine	Crescent City	Crescent City
Pacific Chrome & Manganese Synd.	667 Mission St., San Francisco	Crescent City
El Dorado County		
Rustless Mining Corp., Pilliken Mine	Farmers & Mechanics Bldg., Sacramento	Folsom
Fresno County		
Clara H. Chrome Mines	815 Helm Bldg., Fresno	Watts Valley
Glenn County		
Rustless Mining Corp., Eagle Mine*	Farmers & Mechanics Bldg., Sacramento	Willows
Humboldt County		
Dorothea Reddy Moroney	Hamburg	Orleans
Placer County		
Capital Co. (Owners)	No. 1 Powell St., San Francisco	Colfax
Cuban American Holdings Co., J. J. Kenney	Mills Bldg., San Francisco	Auburn
Larry Dunn, Blue Bell Mine	Grass Valley	Forest Hill
T. C. Green, Lucky Hunter Mine	Forest Hill	Forest Hill
Geo. A. Muller & M. T. Mathews	Forest Hill	Forest Hill
Pettigrew-Stafford & Co.	25 California St., San Francisco	Auburn
H. A. Smith & Bruce McCollum	1444 Franklin St., Oakland	Colfax
Daniel Sullivan	Alta	Towle
Victor Chrome, Chas. Hopper Brown	Box 326, Auburn	Colfax
Plumas County		
Ellis R. Patterson, White Pine Mine	Oakley	Quincy
E. H. Rider	635 Bristol St., Stockton	Quincy
San Luis Obispo County		
Castro Chrome Associates*	232 Montgomery St., San Francisco	San Luis Obispo

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Shasta County Little Castle Creek Chrome Mine, Harvey A. White, Sup't	Box 605, Dunsmuir	Castella
Sierra County James Davis	Box 110, Downieville	Downieville
Siskiyou County Basil Wild, Lambert Chrome Mine	Box 66, Fort Jones	Fort Jones
Tehama County McLaughlin & Applegarth*	3001 Russ Bldg., San Francisco	Red Bluff
Trinity County Vance & Barnes	206 Richfield Oil Bldg., Oakland	Beegum
Tuolumne County Carl Howe*	Columbia	Columbia

* Mined chromite in 1941 but did not ship.

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CLAY

(Including producers of crude clay; and manufacturers of brick, tile, porcelain, etc.)

Operator	Remarks	Address	Location of plant or pit
Alameda County			
California Faience Co., W. B. Bragdon	a	1335 Hearst Ave., Berkeley	Berkeley
California Pottery Co.	a, c	Niles	Niles
N. Clark & Sons	a, b	116 Natomas St., San Francisco	Alameda
Kraftile Co.	a, b, c	Niles	Niles
M & S Tile Co.	a, c	Decoto	Decoto
F. R. Stuve	a, b, c	Box 26, Mt. Eden	Mt. Eden
Tesla Clay Co., Isabell Bros., Lorin Isabell	c	75 W. Whittier St., Tracy	Tesla
Walrich Pottery	a	1285 Hearst Ave., Berkeley	Berkeley
Westinghouse Elec. & Mfg. Co., Emeryville Porcelain Works	a	62d and Green Sts., Emeryville	Emeryville
Woolenius Tiles & Mantels	a	1315 2d St., Berkeley	Berkeley
Amador County			
M. J. Bacon	c	Ione	Carbondale
Cal. Mineral Products Co., Ione Clay and San Pit	c, f	Kohl Bldg., San Francisco	Ione
N. Clark & Sons	c	116 Natomas St., San Francisco	Ione
Clay Corp. of California	c	1267 Russ Bldg., San Francisco	Ione
Ione Fire Brick Co., J. T. Roberts, Mgr.	b, c	1267 Russ Bldg., San Francisco	Ione
Butte County			
Gladding Bros. Mfg. Co.	c	S. 3d and Keys Sts., San Jose	Oroville
Calaveras County			
California Pottery Co.	c	Niles	Valley Springs
Contra Costa County			
American Radiator & Standard Sanitary Mfg. Co., H. W. Creeger, Mgr.	a	Box W., Richmond	Richmond
California Art Tile Corp.	a	Box 1116, Richmond	Richmond
Port Costa Brick Works, C. G. Berg, Pres.	b	6th and Berry Sts., San Francisco	Port Costa
Stockton Fire Brick Co.	a, b	Russ Bldg., San Francisco	Pittsburg
Technical Porcelain & China Ware Co.	a	Manila and Kearney Sts., El Cerrito	El Cerrito
United Materials & Richmond Brick Co., Ltd.	a, b	Box 7, Richmond	Richmond
Fresno County			
Craycroft Brick Co.	a, b, c	Griffith-McKenzie Bldg., Fresno, R.F.D. 1, Box 6A	Fresno
Humboldt County			
D. J. Thompson Brick Co.	a, b, c	Box 16, Myrtle Ave., Eureka	Eureka
Inyo County			
W. R. Cantley	e	Olancha	Olancha
Coen Companies, Inc.	e	711 Gibbons St., Los Angeles	Death Valley

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Kern County			
American Minerals Co.	c	5601 S. Boyle, Los Angeles	Cantil
Antelope Mud Co.	d	Box 496, Avenal	Rosamond
Bakersfield Sandstone Brick Co., James Curran, Mgr.	b	Bakersfield	Bakersfield
Filtrol Company	e	1755 Downey Rd., Los Angeles	Tehachapi
King Lumber Co.	b	1402 King St., Bakersfield	Bakersfield
Mojave Corp.	d	Box 174, Los Nietos	Frazier Park
Muroc Clay Co.	e	5525 Randolph St., Maywood	Muroc
Los Angeles County			
American Container Co., Inc.	a	3132 E. Pico Blvd., Los Angeles	Los Angeles
Angulo Tile Co., L. R. H. and W. H. Angulo	a, c	Reseda, Los Angeles County	Reseda
B. W. Tile Co.	a	14600 S. Western Ave., Gardena	Gardena
J. A. Bauer Pottery Co.	a	415 W. Ave. 33, Los Angeles	Los Angeles
J. Booth	a, c	1775 Stanford, Santa Monica	Santa Monica
Builders Brick Co., Ltd.	b	17602 S. Western Ave., Moneta	Moneta and Compton
California Clay Research Co.	d	Box 1195, Lancaster	Lancaster
Clayburn Brick & Tile Co., P. G. Lingren, Mgr.	b	1376 W. 25th St., Long Beach	Long Beach
Coast Brick Co.	b	Box 326, Moneta	Torrance
H. F. Coors Co., Inc.	a	Inglewood	Inglewood
Davidson Brick Co.	b	4701 Floral Dr., Los Angeles	Los Angeles
Eljer California Co.	a	4100 Alameda, Los Angeles	Arcadia
Emsco Refractories Co.	a, b	5601 S. Boyle Ave., Vernon	Vernon
Gladding, McBean & Co., Tropico, L. A. & S. M. Plants	a, b, c	2901 Los Feliz Blvd., Los Angeles	Tropico, Los Angeles, Santa Monica, Hermosa Beach and Vernon
Higgins Brick & Tile Works	a, b, c	Box 525, Moneta	Moneta
Italian Terra Cotta Co.	a	1149 Mission Rd., Los Angeles	Los Angeles
Markoff Mosaic Tile Corp.	a	1107 E. Redondo Blvd., Inglewood	Inglewood
Meyers Pottery Co.	a	2318 E. 52d St., Los Angeles	Los Angeles
Pacific Clay Products	a, b, c	Box 145, Sta. A, Los Angeles	Los Angeles and Los Nietos
Pacific Tile & Porcelain Co.	a	3428 W. Pico Blvd., Los Angeles	Los Angeles and Los Nietos
Pomona Brick Co.	b	Pomona	Pomona
Pomona Tile Mfg. Co.	a	629 N. La Brea Ave., Los Angeles	Pomona
Refractories Corp.	a, b	3363 Fruitland Rd., Vernon	Vernon
San Vallee Tile Kilns, R. F. Stubver, Mgr.	a, c	6601 Wilbur, Reseda	Reseda
St. Louis Fire Brick and Clay, Joseph Mesmer	b	3050 E. Slauson St., Los Angeles	Los Angeles
Simons Brick Co., Walter R. Simons	a, b, c	1195 S. Boyle Ave., Los Angeles	Los Angeles
Star Brick Co.	b	Moneta	Moneta
Vernon Potteries	a	2300 E. 52d St., Los Angeles	Vernon
Vitrefrax Co.	a, b, c	5050 Pacific Blvd., Los Angeles	Los Angeles

a. Clay products. b. Brick and hollow building-tile. c. Crude clay. d. Oil-well drilling-mud. e. Filtering clay. f. Fire sand.

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CLAY—1941—Continued

(Including producers of crude clay; and manufacturers of brick, tile, porcelain, etc.)

Operator	Remarks	Address	Location of plant or pit
Marin County			
McNear Brick Co.	a, c	McNear Point, San Rafael	McNear
Orange County			
El Toro Clay Co., I. P. Arnold	c, f	1846 W. 83d St., Los Angeles	El Toro
Gladding, MacBean & Co.	c	2901 Los Feliz Blvd., Los Angeles	Gypsum
La Bolsa Tile Co.	a, c	R.F.D. 1, Box 174, Huntington Beach	Smeltzer
McClintock Clay Products, Earl McClintock	c	661 Los Nietos Rd., Los Nietos	Los Nietos
Mission Clay Products Co.	a, b, c	Olive	Olive
Tierra Colorado Clay Co.	c	Box 441, San Juan Capistrano	San Juan Capistrano
Placer County			
Clay Corp. of Calif.	c	1267 Russ Bldg., San Francisco	Lincoln
Gladding, McBean & Co.	a, b, c	2901 Los Feliz Blvd., Los Angeles	Lincoln
Lincoln Clay Products Co.	c	Lincoln	Lincoln
Riverside County			
Alberhill Coal & Clay Co.	c	Box 4267, Village St., Los Angeles	Alberhill
Los Angeles Brick Co.	a, b, c	1078 Mission Rd., Los Angeles	Alberhill
Pacific Clay Products	c	Box 145, Sta. A, Los Angeles	Corona
Temescal Clay Co.	c	8601 Dorothy Ave., South Gate	Temescal
Temescal Water Co.	c	Temescal via Corona	Temescal
Sacramento County			
Cannon & Co.	a, b, c	Box 802, Sacramento	Ben Ali
Gladding Bros. Mfg. Co.	c	S. 3rd and Keyes Sts., San Jose	Folsom
H. C. Muddox, Jessie E. Muddox, Owner	a	30th and L Sts., Sacramento	Sacramento
Panama Pottery Co.	a	R.F.D. 4, Box 1478, 24th St. Rd., Sacramento	Sacramento
Sacramento Brick Co.	b	1300 Front St., Sacramento	Sacramento
San Bernardino County			
American Radiator & Standard Sanitary Corp.	c	Campo	Hart
Baroid Sales Div., National Lead Co.	d, e	830 Ducommun St., Los Angeles	Hector
Hancock Brick Yard, C. P. Hancock & Son	b	4330 Lemon St., Riverside	Highgrove
Kennedy Clay Pit, John Kennedy	c	5009 O'Sullivan Dr., Los Angeles	Daggett
Kennedy Minerals Co.	c	2550 E. Olympic Blvd., Los Angeles	Colton
Pacific Bentonite Mine, Louis Martinez	e	Box 374, Red Mountain	Red Mountain
Red Ball Mud & Chemical Co.	d, e	111 W. 7th St., Los Angeles	Barstow
Southern California Minerals Co., W. K. Skeoch	c	320 S. Mission Rd., Los Angeles	Goff
Temescal Clay Co.	g	6801 Dorothy Ave., South Gate	Hicks
Velvet-White Co., B. N. Murphy	c	Box 389, Burbank	Oro Grande

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San Diego County			
Pacific Clay Products Co.	c	Box 145, Station A, Los Angeles	Farr Station
Union Brick Co., J. W. Rice	b	3565 3d St., North San Diego	Rose Canyon
Vitrified Products Corp.	a, b, c	4570 Pacific Highway, San Diego	North San Diego
San Joaquin County			
Joaquin Potteries	a	McKinley Ave., Stockton	Stockton
San Joaquin Brick Co., J. F. Stein, Secretary	b	33 S. El Dorado St., Stockton	Stockton
Stockton Brick & Tile Co.	a, b, c	McKinley Ave., Stockton	Stockton
San Luis Obispo County			
San Luis Brick Works, Faulstick Bros.	b	San Luis Obispo	San Luis Obispo
San Mateo County			
Richmond Potteries, Inc.	a	Box 187, South San Francisco	South San Francisco
Santa Barbara County			
McNall Building Materials	a, b, c	208 N. Salsipuedes, Santa Barbara	Santa Barbara
Santa Clara County			
Coyote Creek Clay Bed, L. R. Lenfest	c	400 Woster Ave., San Jose	San Jose
Garden City Pottery	a	560 N. 6th St., San Jose	San Jose
Gladding Bros. Mfg. Co.	a, b, c	S. 3d and Keyes Sts., San Jose	San Jose
Myers Ceramic Pottery, F. Hinz	a	Box 97, Santa Clara	Santa Clara
Remillard-Dandini Co.	b	569 3d St., Oakland	San Jose
S. & L. Tile Co.	a	1881 S. 1st St., San Jose	San Jose
Stanislaus County			
Coopertown Clay Deposit, J. H. Hornsby	c	714 E. Jefferson St., Stockton	Coopertown
V. J. Winkler	c	2332 Fulton St., Berkeley	Knights Ferry
Sutter County			
Gladding, McBean & Co.	c	2901 Los Feliz Blvd., Los Angeles	Nicolaus
Tulare County			
San Joaquin Materials Co.	b	744 G St., Fresno	Exeter
Ventura County			
Shell Oil Co., Dent Clay Pit	d	Shell Bldg., San Francisco	Ventura
Antelope Mud Co.	d	Box 496, Avenal	Frazier Mt. and Cuyama

a. Clay products. b. Brick and hollow building-tile. c. Crude clay. d. Oil-well drilling-mud. e. Filtering clay. f. Fire sand.

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COAL

Operator	Address	Location of mine
Mendocino County		
Ocean Coal Co.	Dos Rios	Dos Rios
Trinity County		
Tom Reese	Douglas City	Douglas City

COPPER—10,000 lbs. or more in 1941

Principal Copper Producers

Mine	Operator	Address	Postoffice of mine
Inyo County			
Columbia No. 2	Shoshone Mines, Inc.	Tecopa	Tecopa
Darwin Silver Lead	Imperial Metals, Inc.	811 W. 7th St., Los Angeles	Darwin
Pine Creek	U. S. Vanadium Corp.	30 E. 42d St., New York, N. Y.	Bishop
Nevada County			
Lava Cap	Lava Cap Gold Mining Corp.	Nevada City	Nevada City
Plumas County			
Walker	Walker Mining Company	821 Kearns Bldg., Salt Lake City, Utah	Walkermine
San Bernardino County			
Bagdad-Chase-Roosevelt	Frank W. Royer	Red Mountain	Ludlow
Kelly	Frank W. Royer	Red Mountain	Red Mountain
Shasta County			
Iron Mountain	The Iron Mountain Copper Co., Ltd.	216 Pine St., San Francisco	Matheson

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DIATOMITE (DIATOMACEOUS EARTH)

Operator	Address	Location of quarry or mine
Los Angeles County		
The Dicalite Co.	756 S. Broadway, Los Angeles	San Pedro
Monterey County		
Pacatome, Ltd.	Bradley	Bradley
Santa Barbara County		
Johns-Mansville Products Corp.	Lompoc	Lompoc

DOLOMITE

Operator	Address	Location of quarry
Inyo County		
Inyo Marble Co.	726-732 E. 29th St., Los Angeles	Keeler
Los Angeles County		
W. F. Glasser, Inc.	713 N. Sepulveda, Brentwood Heights, Los Angeles	Bel-Air
Sheba Fertilizer Co., Eugene L. Graves	4358 Elizabeth St., Bell	Palmdale
Monterey County		
Bethlehem Steel Co., Sterling Ranch Quarry	20th and Illinois, San Francisco	Natividad
San Benito County		
Archie E. Hamilton	Hollister	Hollister
Tuolumne County		
Walter C. Sundberg	Box 653, Sonora	Sonora
U. S. Lime Products Corp.*	85 2d St., San Francisco	Sonora

* Output used in lime.

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FELDSPAR

Operator	Address	Location of mine
San Bernardino County		
Gladding, McBean & Co.	2901 Los Feliz Blvd., Los Angeles	
San Diego County		
American Radiator & Standard Sanitary Corp., D. D. Fleming, Mgr.	Campo	Campo

GEMS AND JEWELERS' MATERIALS

Operator	Variety	Address
C. M. Carter	Tourmaline, topaz, garnet	553 27th St., Oakland
W. C. Eyles	Jasper, onyx	749 W. A St., Hayward
Wm. Grove	Iceland-spar	Cedarville
H. F. Heather	Iceland-spar	236 Oak Knoll Ave., Pasadena
Pala Chief Mine, Margaret S. Moore & M. Wear	Tourmaline, Kunzite, quartz crystals	Box 33, Pala

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Principal gold producers in California during 1941 out of a total of 1,559 placer operators and lode mines

Mine	Location of mine	Type of mine	Operator	Address of operator
Amador County				
Amador Dredge	Ione	h	Amador Dredging Company	Ione
Argonaut	Jackson	a	Argonaut Mining Co., Ltd.	1404 Humboldt Bank Bldg., San Francisco
Arroyo Seco	Ione	e	Arroyo Seco Gold Dredging Company	351 California St., San Francisco
Belden	Pine Grove	a	Belama Corp.	1506 Wall St., Fort Wayne, Indiana
Boardman (Garibaldi)	Volcano	k	Garibaldi Bros.	Volcano
Buena Vista (Dredge No. 3)	Buena Vista	e	Lancha Plana Gold Dredging Company	La Lomita Rancho, Lockeford
Central Eureka	Sutter Creek	a	Central Eureka Mining Company	Sutter Creek
Delta	Ione	c	Delta Tailings Company	564 Market St., San Francisco
W. F. Detert Estate	Plymouth	h	W. D. Ingram and Mountain Gold Dredging Company	Amador City
Elk Horn	Pine Grove	a	Edward Schoefer	Pine Grove
Horton	Ione	g	Henry G. Kreth	Ione
Irish Hill		h	McQueen and Downing	1040 38th St., Sacramento
Kennedy	Martell	a	Kennedy Mining & Milling Company	519 California St., San Francisco
Keystone	Amador City	a	Keystone Mine Syndicate	Amador City
Matulich Property	Dry Town	h	Mountain Gold Dredging Company	Amador City
McCullough Property	Amador City	h	Pacific Placers Engineering Company	3400 H St., Sacramento
John Orr Property	Plymouth	h	W. D. Ingram	Foresthill
Pioneer	Pine Grove	a	Gwalia Gold Mining Company	Pine Grove
Plymouth Tails	Plymouth	c	Argonaut Mining Co., Ltd.	1404 Humboldt Bank Bldg., San Francisco
River Pine Dredge	Plymouth	h	River Pine Mining Company	Plymouth
Rupley Ranch	Sutter Creek	k	John C. Pantle	Box 502, Sutter Creek
Treble Clef	Ione	h	Earnest L. Lilly	706 California Bldg., Stockton
Yager Ranch	Jackson	h	Rim Cam Gold Dredging Company	Jackson
Butte County				
John Alm Property	Oroville	h	William Richter & Sons	Rt. 2, Box 400, Oroville
Butte Unit	Honcut	e	Yuba Cons. Gold Fields	351 California St., San Francisco
Cherokee Tailings	Oroville	c - h	Butte Operating Company	Oroville
Clark Property	Oroville	h	Sunmar Dredging Company	Box 228, Oroville
Crowder & Binney Property	Oroville	h	Sunmar Dredging Company	Box 228, Oroville
Dagorret Property	Oroville	h	Placer Exploration Company	Box 498, Chico
Darby Property	Oroville	h	Sunmar Dredging Company	Box 228, Oroville
Darby & Crowder Property	Oroville	h	Sunmar Dredging Company	Box 228, Oroville
Feather River Dredge	Oroville	h	Golden Feather Dredging Company	Oroville
Ford Property	Oroville	k	Kaufield & Danisan	Oroville
Gianella Ranch	Oroville	h	Interstate Mines, Inc., and Placer Exploration Co.	Chico

a. Lode gold mine. b. Gold-silver mine. c. Tailings dump. d. Pocket. e. Dredge (bucketline). f. Drift mine. g. Hydraulic mine. h. Dragline operations. j. Copper mine. k. Power shovel or dry land dredge. m. Lead mine.

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GOLD—Continued

Principal gold producers in California during 1941 out of a total of 1,559 placer operators and lode mines

Mine	Location of mine	Type of mine	Operator	Address of operator
Butte County—Continued				
Hazelbusch Tract	Oroville	e	Oroville Gold Dredging Co.	2052 Bird St., Oroville
Hume and Coleman Property	Oroville	h	William Richter & Sons	Rt. 2, Box 400, Oroville
Innis Property	Oroville	h	Placer Exploration Company	Box 498, Chico
Wilton Kister Property	Oroville	e	Gold Hill Dredging Company	311 California St., San Francisco
Lancha Plana Dredge No. 5	Chico	e	Lancha Plana Gold Dredging Company	La Lomita Rancho, Lockeford
Lemroh Dredge	Oroville	c - h	Lemroh Mining Company	2401 Bayshore Blvd., San Francisco
Lorrie Property	Oroville	h	William Richter & Sons	Rt. 2, Box 400, Oroville
Peters Property	Oroville	h	Lobicasa Company and Sunmar Dredging Company	Oroville
Placer Development Company Dredge	Oroville	c - h	Placer Development Company	2401 Bayshore Blvd., San Francisco
T. M. Rogers Tract	Oroville	e	Oroville Gold Dredging Company	2052 Bird St., Oroville
Rottinger Property	Oroville	h	William Richter & Sons	Rt. 2, Box 400, Oroville
Schwartz and Pedrazzini Property	Oroville	h	Sunmar Dredging Company	Box 228, Oroville
Sunset	Oroville	h	Piombo Bros. & Company	1571 Turk St., San Francisco
Surcease	Yankee Hill	a	Hoefling Bros.	Box 786, Sacramento
Calaveras County				
Arlington & Osterman Property	Camanche	e	Gold Hill Dredging Company	311 California St., San Francisco
Beers Property	Mokelumne Hill	h	Horseshoe Dredging Company	Mokelumne Hill
Thomas B. Bishop Property	Angels Camp	h	Oscar R. Beever	Angels Camp
Carson Hill	Melones	a	Carson Hill Gold Mining Corp.	206 Sansome St., San Francisco
Cat Camp	Valley Springs	k	Cat Camp Placer	Valley Springs
City of Stockton Reservoir	Valley Springs	h	Lobicasa Company	Box 812, Sacramento
Dal A. Ray	San Andreas	a	Ray Hageman	San Andreas
Easzy Bird	Jackson	a	Le Roi Mines, Inc.	Jackson
Fischer Property	San Andreas	h	San Andreas Gold Dredging Company and Thurman & Wright	960 Russ Bldg., San Francisco
Foster Ranch	Camanche	k	Burson Mining Company	2054 University Ave., Berkeley
Gertzen Ranch	Angels Camp	h	Horseshoe Dredging Company	Mokelumne Hill
Glo-Bar	San Andreas	f	Glo-Bar Mines	Box 25, San Andreas
Gold Mining & Water Company Property	San Andreas	k	Fire Protection Engineering Company	369 Pine St., San Francisco
Gregory, Sinclair & Dickhaut Ranches	Linden	h	Thompson Dredge	400 4th St., Yreka
Hageman Property	San Andreas	h	San Andreas Gold Dredging Co. and Thurman & Wright	960 Russ Bldg., San Francisco
Hatler	Jenny Lind	h	Charles F. Vanciel	Oakdale
Jesus Maria Creek	Mokelumne Hill	h	Horseshoe Dredging Company	Mokelumne Hill
Lombardi Property	San Andreas	h	Thurman & Wright	960 Russ Bldg., San Francisco

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Mountain King	Copperopolis	a	El Gabilan Corp. and Jumbo Cons. Mining Company	1132 So. Lake St., Los Angeles
Miner Property	San Andreas	h	San Andreas Gold Dredging Company	960 Russ Bldg., San Francisco
Oien	Jenny Lind	k	G. T. Oien	Jenny Lind
Penn. Mining Company Property	Camanche	k	Midas Placer Company	Camanche
Quartz Hill	Angels Camp	k	Quartz Hill Placer and A. W. Ellis	Box 116, Angels Camp
Ranch	Copperopolis	a	Jackson T. McCarty	Copperopolis
Robie Property	Valley Springs	h	Horseshoe Dredging Company and Stagan Mining Company	Box 543, Valley Springs
Royal	Milton	a	Frank S. Tower and Carl Jensen	Milton
Sheepranch	Sheepranch	a	St. Joseph Lead Company	250 Park Ave., New York, N. Y.
Stringer Property	Jenny Lind	h	Henry and Weaver	706 California Bldg., Stockton
Wallace	Wallace	c - k	Ellard A. Bacon	303 Delmar Way, San Mateo
White Property	San Andreas	h	Imperial Dredging Company	San Andreas
Willits Ranch	Valley Springs	h	Stagan Mining Company	Box 543, Valley Springs
Wolhall Dredging Corp. Placer Operation	Jenny Lind	h	Wolhall Dredging Corp.	Natoma
El Dorado County				
Alhambra	Kelsey	a	Alhambra-Shumway Mines, Inc.	704 Helm Bldg., Fresno
Barkley Property	Youngs	h	Greenhorn Dredging Company	Youngs
Black Oak	Garden Valley	a	Robert Garners and A. N. Rolfe	Garden Valley
Coloma Creek Unit	Georgetown	h	El Dorado Dredging Corp.	Georgetown
Connor-Carter Le Mode Lease	Youngs	h	Greenhorn Dredging Company	Youngs
Cosumnes	Grizzly Flats	a	Cosumnes Mines, Inc.	Grizzly Flats
Craig Osborne	Placerville	h	W. D. Ingram	Foresthill
Craig Royce (Thacker Property)	Placerville	h	W. D. Ingram	Foresthill
Dredge No. 2	Coloma	h	General Dredging Company	Coloma
Dredge No. 3	Coloma	h	General Dredging Company	Coloma
Dredge No. 3	Shingle	c - h	General Dredging Company	Rescue
Duffy-Stevens Property		h	W. D. Ingram	Foresthill
Dunlap Ranch	Folsom	h	Big Canyon Dredge	Box 649, Fresno
Eagle King	Grizzly Flats	a	Eagle King Mining Company	215 W. 5th St., Los Angeles
Emma Gordon Property		c - h	Van Dyke, Modrell & Warner	Box 822, Ione
Hughes Property	Georgetown	h	El Dorado Dredging Corp.	Georgetown
Indian Creek	Placerville	k	Orolomo Company	Box 548, Placerville
Irish Creek Unit	Georgetown	h	El Dorado Gold Dredging Corp.	Georgetown
Kelsey Unit	Placerville	a	California Aztec Mining Company	Box 469, Placerville
McCoy & Butler		k	J. W. S. Butler	604 Capitol Nat'l Bank Bldg., Sacramento
River Pine Dredge	Plymouth	h	River Pine Mining Company	2432 19th Ave., San Francisco
Sliger	Auburn	a	Middle Fork Gold Mining Company	Box 192, Auburn
White Lease	Youngs	h	Greenhorn Dredging Company	Youngs
Fresno County				
Friant Dam Aggregate Deposit	Friant	k	Griffith & Co. and Bent Co.	418 S. Pecan St., Los Angeles
Hopkins & Becker Dredge	Friant		Hopkins & Becker	3231 Fernside Blvd., Alameda

a. Lode gold mine. b. Gold-silver mine. c. Tailings dump. d. Pocket. e. Dredge (bucketline). f. Drift mine. g. Hydraulic mine. h. Dragline operations. j. Copper mine. k. Power shovel or dry land dredge. m. Lead mine.

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GOLD—Continued

Principal gold producers in California during 1941 out of a total of 1,559 placer operators and lode mines

Mine	Location of mine	Type of mine	Operator	Address of operator
Humboldt County				
Pearch	Orleans	c - g	Charles L. Crowder, Fred Delaney, and Roy McGain	Orleans
Imperial County				
Cargo Muchacho	Winterhaven	a	Holmes & Nicholson Mining & Milling Company	Box 451, Winterhaven
Gold Bird Claim	Winterhaven	a	Holmes & Nicholson Mining & Milling Company	Box 451, Winterhaven
Mesquite Claims	Glamis	a	Reese Production Corp.	945 13th North, Seattle, Washington
Inyo County				
Arondo	Trona	a	Arondo Mining Company	Trona
Cecil R.	Trona	a	Isaak & Sandau and Polson-Stiles-Marchstadt	Trona
Columbia No. 2	Tecopa	m	Shoshone Mines, Inc.	Tecopa
Del Norte-Skidoo	Trona	a	Del Norte Mining Company	Box 2052, Mojave
Gold Bug	Death Valley	a	Mining Associates	Box 39, Lancaster
Mint-O-Gold	Trona	a	Glassbrook-Sanders-Isaak, Polson-Stiles-Marchstadt, and H. C. Priest	Trona
Old Mill Schist	Laws	a	J. W. Bertram and Wilbur M. Bundy	Laws
Reward (Brown Monster)	Independence	a	Dick Bright, et al.	Independence
Ruth	Argus Range	a	Burton Bros.	Rosamond
Tucki	Lone Pine	a	Louis Warnken, Jr.	Box 230, Lone Pine
Kern County				
Aunt Rosa	Caliente	a	Frasch & Rudnick	Caliente
Big Blue	Kernville	a	Kern Mines, Inc.	260 California St., San Francisco
Big Butte	Randsburg	a - c	Butte Lode Mining Company	650 S. Grand Ave., Los Angeles
Big Dyke	Randsburg	a	J. D. Shea, et al.	Randsburg
Big Gold Group	Randsburg	a	John Kreta	Randsburg
Buckboard	Randsburg	a	Herman Anderson and Cal Williams	Randsburg
Cactus Queen	Rosamund	b	Cactus Mines Company	1206 Pacific Mutual Bldg., Los Angeles
Golden Queen	Mojave	a	Golden Queen Mining Company	Mojave
Gwynne	Mojave	a	Geringer Bros.	Mojave
K. C. N.	Randsburg	a	George Post and W. C. Shoonmaker	Randsburg
King Solomon	Johannesburg	a - c	King Solomon Mines Lease and Lessors	Johannesburg
Lodestar	Mojave	b	Lodestar Mining Company and Jack Beyer	Mojave
Lone Star	Bodfish	a	Ben Ekkelboom, et al.	Bodfish
New Deal	Randsburg	a	L. Z. Bess, et al.	Caliente
Standard Hill	Mojave	a	Standard Hill Mines Company and Lessees	2 Pine St., San Francisco
Tropico	Rosamond	a	Burton Bros. and Lessees	Rosamond

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Wade	Red Mountain	a	Glen Hatton and Maccari & Egts	Red Mountain
Whitmore	Mojave	b	Glen Lowry, Joe Marshall, and James Ritchie	Mojave
Yellow Aster	Randsburg	c	Anglo-American Mining Corp., Ltd.	206 Sansome St., San Francisco
Los Angeles County				
Big Susanna	Gorman	a	W. J. Rogers, et al.	Gorman
Governor	Acton	a	Governor Mine Company	Acton
Madera County				
Casaurang Ranch	Madera		E. J. Gibbons and Richard A. Casaurang	Madera
	Madera		Harry A. Berg	Box 581, Madera
Mariposa County				
Crocker Huffman Land & Water Company Property	Merced Falls	h	Thurman & Wright	960 Russ Bldg., San Francisco
Diltz	Mariposa	a	Diltz Development Company and Glen Coburn	Mariposa
El Dorado Creek	Hornitos	h	Barker Corporation	Hornitos
Explorers, Inc. Property		h	Barker Corporation	Chinese Camp
Feliciana	Midpines	a	Black Oak Mining Company	Midpines
Fretz Property	Mariposa	h	Trebor Corporation	Box 51, Mariposa
Granite King	Mariposa	a	Mt. T. McElligott	Fresno
Jenny Lind	Hornitos	a	Lind Mining Company Pacific Mining Company	Box 10, Hornitos 1022 Crocker Bldg., San Francisco
Machado Property	Mariposa	h	Trebor Corporation	Box 51, Mariposa
Malvina Group	Coulterville	a	Boston California Mining Company	Sonora
Mt. Gaines	Hornitos	a	Mt. Gaines Mining Company	Hornitos
Munn Property		h	Barker Corporation	Chinese Camp
Penrose Property		h	Barker Corporation	Chinese Camp
Pine Tree and Josephine	Bear Valley	a	Pacific Mining Company	1022 Crocker Bldg., San Francisco
Quail	Coulterville	a	Golden Quail, Inc.	404 Bank of America Bldg., San Jose
Stratton Property		h	Barker Corporation	Chinese Camp
Waltz Property	Merced Falls	h	Trebor Corporation Thurman & Wright	960 Russ Bldg., San Francisco Box 51, Mariposa
Merced County				
Crocker Huffman Land Water Company Property	Merced Falls	h	Thurman & Wright	960 Russ Bldg., San Francisco
Merced Dredge No. 1	La Grange	e	Merced Dredging Company	1805 Mills Tower, San Francisco
Merced Unit	Snelling	e	Yuba Cons. Gold Fields	351 California St., San Francisco
San Joaquin Dredge No. 1	La Grange	e	San Joaquin Mining Company	1805 Mills Tower, San Francisco
Snelling Dredge	Snelling	e	Snelling Gold Dredging Company	Snelling
Waltz Property	Merced Falls	h	Thurman & Wright	960 Russ Bldg., San Francisco
Mono County				
Gold Crown	Benton	a	Robert G. Jones and Joe Mains	Benton
Log-Cabin (Simpson)	Leevining	a	Log Cabin Mines Company	411 W. 7th St., Los Angeles
Standard	Bodie	a	Roseklip Mines Company	206 Sansome St., San Francisco

a. Lode gold mine. b. Gold-silver mine. c. Tailings dump. d. Pocket. e. Dredge (bucketline). f. Drift mine. g. Hydraulic mine. h. Dragline operations. j. Copper mine. k. Power shovel or dry land dredge. m. Lead mine.

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GOLD—Continued

Principal gold producers in California during 1941 out of a total of 1,559 placer operators and lode mines

Mine	Location of mine	Type of mine	Operator	Address of operator
Napa County				
Palisades	Calistoga	b	Helena Cons. Mines, Inc.	Calistoga
Nevada County				
Black Prince	Nevada City	a	Albert Luiselli	419 Henderson St., Grass Valley
Bullion	Grass Valley	a	Grass Valley Bullion Mines, Inc.	Russ Bldg., San Francisco
Columbia Hill	Nevada City	h	Kaufield & Danisan	Nevada City
Donnelly & Johnson Property		h	William Richter & Sons	Rt. 2, Box 400, Oroville
Elder	Grass Valley	h	M. K. Gibson Mining Company	Grass Valley
Empire-North Star, et al.	Grass Valley	a	Empire Star Mines Co., Ltd.	Grass Valley
Golden Center	Grass Valley	a	Cooley Butler	745 Rowan Bldg., Los Angeles
Idaho-Maryland-Brunswick	Grass Valley	a	Idaho Maryland Mines Corp.	Grass Valley
King	Nevada City	d	Mrs. Louise Bews	Nevada City
Lava Cap	Nevada City	a	Lava Cap Gold Mining Corp.	Nevada City
Malakoff	Nevada City	c - h	A. B. Innis and Gus Sterns	Nevada City
Martel Property	Grass Valley	h	M. K. Gibson Mining Company	Grass Valley
Omega	Nevada City	g	Omega Company	Box 1068, Nevada City
Perrin Property	Nevada City	h	Wyandotte Dredging Company	Box 228, Nevada City
Pingree Property	Nevada City	h	Wyandotte Dredging Company	Box 228, Nevada City
Queen Lil	Nevada City	a	Rolfe Buffington and Carl Trevethick	Nevada City
Relief Hill	North Bloomfield	g	Western Gold, Inc.	943 Russ Bldg., San Francisco
Shovel Placers	Nevada City	h	A. Danisan and H. W. McKinely	Nevada City
Spring Hill	Grass Valley	a	Spring Hill Gold Mines, Inc.	1911 Mills Tower, San Francisco
Stockton Hill	Auburn	a	Stockton Hill Corp.	Auburn
Placer County				
Alabama	Auburn	a	Alabama California Gold Mines Company	Box 488, Auburn
William Ayers Property	Auburn	h	Gold Recoveries Corp.	Box 58, Auburn
Duffy-Stevens Property	Foresthill	h	W. D. Ingram	Box 225, Foresthill
Duncan Hill	Auburn	a	John K. Wright and L. W. Smith	Box 861, Auburn
Ferrari Property	Lincoln	k	Panob Gold Dredging Company	Lincoln
Fisher Ranch	Newcastle	h	H. W. McKinely	Newcastle
Forsyth & Lewis Property	Lincoln	k	Panob Gold Dredging Company	Lincoln
Guilford Property	Lincoln	c - k	Curtis & Walters and W. K. Potts	Lincoln
Highway Forty	Newcastle	a	Highway Forty Mines, Inc.	Newcastle
Johnson Property	Lincoln	k	Charles N. Chittenden	Box 246, Auburn
Leak Ranch		h	Gold Placers, Inc.	320 Capitol National Bank Bldg., Sacramento
Mary Len	Penryn	a	V. J. De Campos	Penryn
Mutual	Dutch Flat	k	La Kamp Bros.	Dutch Flat
Occidental	Bowman	f	Lebanon Cons. Mines	200 Bush St., San Francisco
Oro Fino	Auburn	a	Oro Fino Cons. Mines	Box 432, Auburn

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Rawhide	Baxter	a	Canyon Mines Corp.	111 Sutter St., San Francisco
Rogers Ranch		k	Hallstrom and Lindblad	Sacramento
Strap Ravine	Roseville	e	Roseville Gold Dredging Company	351 California St., San Francisco
Volcano	Foresthill	f	Volcano Mining Co., Ltd.	1073 Mills Bldg., San Francisco
Plumas County				
Cherokee	Greenville	a	G. F. Hodgins	200 Bush St., San Francisco
Jamison	Johnsville	a	Ernest Allen, et al.	Johnsville
Kelsey Ranch	Blairsden	h	Lobicasa Company	Box 812, Sacramento
Lights Creek	Greenville	h	A. B. Innis	Nevada City
Meadow Valley	Meadow Valley	h	Baker & McCowan	Box 305, Chico
Ohio Point (Virgilia)	Virgilia	a	Virgilia Mining Corp.	Virgilia
Walker	Walkermine	j	Walker Mining Company	821 Kearns Bldg., Salt Lake City, Utah
Riverside County				
Brooklyn-Los Angeles Group	Twentynine Palms	a	Dewey M. Campbell and Lessees	460 Highland Ave., San Bernardino
Mission	Mecca	a	Mission Mining Corp. and T. J. Ake	Mecca
Sunshine	Indio	d	G. W. Hill	Indio
Sacramento County				
Biggs Ranch (Boat No. 1)	Sacramento	c - h	Hoosier Gulch Placers	1015 25th St., Sacramento
Capital Dredge	Fair Oaks	e	Capital Dredging Company	351 California St., San Francisco
Cosumnes Gold Dredge	Sloughouse	e	Cosumnes Gold Dredging Company	351 California St., San Francisco
Deer Creek	Folsom	h	McQueen & Downing	1040 38th St., Sacramento
Dredge No. 1	Natoma	h	Gen. Dr. Corp. and Gen. Dr. Company	Natoma
Dredge No. 4	Natoma	h	Gen. Dr. Corp. and Gen. Dr. Company	Natoma
Fassett-Parker-Hanlon Property	Sloughhouse	h	Humphreys Gold Corp.	910 First Nat'l Bank Bldg., Denver, Colorado
Hutchinson Property	Sloughouse	h - k	Humphreys Gold Corp.	910 First Nat'l Bank Bldg., Denver, Colorado
Lancha Plana Dredge No. 4	Fair Oaks	e	Lancha Plana Gold Dredging Company	La Lomita Rancho, Lockeford
Mahon	Sloughhouse	h	Lobicasa Company	Box 812, Sacramento
Natomas Company	Natoma	e	Natomas Company	Forum Bldg., Sacramento
Quinn Ranch	Folsom	h	Carson Creek Dredging Company Northwest Development Company	216 Pine St., San Francisco Sacramento
Rossi Property (Boat No. 2)	Sacramento	c - h	Hoosier Gulch Placers	1015 25th St., Sacramento
John Vincent Property	Folsom	h	Climax Dredging Company	Folsom
San Bernardino County				
Bagdad-Chase-Roosevelt	Ludlow	a	Frank W. Royer	Red Mountain
Big Bear (Lucky Baldwin)	Big Bear Lake	a	Big Bear Mines, Ltd., Inc.	Big Bear Lake
Gold Crown	Twentyine Palms	a	Gold Crown Mining Co., Ltd.	714 W. Olympic Blvd., Los Angeles
Gold Stone	Twentynine Palms	a	Leroy A. Wilson	Box 329, Twentynine Palms
Holcomb Valley	Big Bear Lake	k	Holcomb Valley Placer Company	973 N. Main St., Los Angeles
Kelly	Red Mountain	b	Frank W. Royer	Red Mountain
Santa Fe	Lucerne Valley	a	Beverly Oil Company, et al.	8517 W. 3d St., Los Angeles
Sulphide Queen	Mountain Pass	a	Fred B. Piehl and J. C. Howard	117 W. 9th St., Los Angeles
Valley View	Ivanpah	a	W. W. Hartman	1230 E. 109th St., Los Angeles

a. Lode gold mine. b. Gold-silver mine. c. Tailings dump. d. Pocket. e. Dredge (bucketline). f. Drift mine. g. Hydraulic mine. h. Dragline operations. j. Copper mine. k. Power shovel or dry land dredge. m. Lead mine.

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GOLD—Continued

Principal gold producers in California during 1941 out of a total of 1,559 placer operators and lode mines

Mine	Location of mine	Type of mine	Operator	Address of operator
San Joaquin County				
Elmer Cady Property	Linden	h	Smith-Notterman Company	Box 204, Linden
California Gold Dredge	Linden	e	California Gold Dredging Company	351 California St., San Francisco
Lewallen Ranch	Linden	h	Smith-Notterman Company	Box 204, Linden
Jennie Lucas Property		e	Gold Hill Dredging Company	311 California St., San Francisco
Osterman Property	Camanche	e	Gold Hill Dredging Company	311 California St., San Francisco
Alex Pirie Property		e	Gold Hill Dredging Company	311 California St., San Francisco
Putnam Property	Clements	e	Gold Hill Dredging Company	311 California St., San Francisco
Thorne Property		e	Gold Hill Dredging Company	311 California St., San Francisco
Watkins Dredge	Linden	h	A. G. Watkins & Sons	Linden
Shasta County				
Blue Gravel	Redding	a	Carino Hewer Lease	Box 571, Redding
Brunswick	French Gulch	a	B. J. Angelich and E. J. Breton	French Gulch
Champion Gulch		h	J. P. Brennan	1343 Butte St., Redding
Clear Creek Dredge	Redding	h	Clear Creek Dredging Company	Box 598, Redding
R. C. Connelly & Robert Leitsch Property	Shasta	h	B.H.K. Mines	Box 325, Orland
Crow Creek Dredge	Redding	h	Crow Creek Dredging Company	Box 558, Redding
Daly Gulch (Olson Dredge)	Redding	h	Roy A. Olson	1178 Walnut Ave., Redding
Forschler Property		h	C. E. Gruwell	Hotel Redding, Redding
French Gulch Placer	French Gulch	e	French Gulch Dredging Company	2404 Russ Bldg., San Francisco
Gold Acres	Redding	h	Tehama Dredging Company	Box 727, Anderson
Greenhorn	French Gulch	a	Willow Creek Mines, Inc.	Redding
Happy Valley Water Company Property		h	San Gruco Company	Redding
Iron Mountain	Matheson	a	The Mountain Copper Co., Ltd.	216 Pine St., San Francisco
Fred Kohle Property	Redding	c-h	De Karr & Herbert	Redding
Kutras Tract	Redding	k	Columbia Construction Co., Inc.	1522 Latham Square Bldg., Oakland
Montgomery Property	Centerville	h	Dobbin Gulch Dredging Company	Box 539, Redding
Rias Ranch		h	C. E. Gruwell	Hotel Redding, Redding
Russell Property		h	C. E. Gruwell	Hotel Redding, Redding
St. Jude	French Gulch	a	St. Jude Mining Company	French Gulch
Thurman Gold Dredge	Redding	e	Thurman Gold Dredging Company	235 Montgomery St., San Francisco
Washington	French Gulch	a	J. H. Scott Company	465 California St., San Francisco
Yankee Jack	Redding	a	A. G. Cadogan, Lessee	Box 884, Redding

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Sierra County				
Alaska	Pike	h	H. L. Sorensen	685 6th St., San Francisco
Bowman	North San Juan	e	W. C. Ennis	Box 20, North San Juan
Loftus Blue Lead	Downieville	h	Loftus Blue Lead Mining Company	801 Columbia St., South Pasadena
Oriental	Alleghany	e	Dickey Exploration Company	Alleghany
Original Sixteen to One	Alleghany	e	Original Sixteen to One Mine, Inc.	1611 Russ Bldg., San Francisco
P. G. & E. Property	Downieville	h	William Richter & Sons	Rt. 2, Box 400, Oroville
Poverty Hill Properties	Strawberry Valley	e	Poverty Hill Properties	351 California St., San Francisco
Ruby	Goodyears Bar	f	C. L. Best	Goodyears Bar
Siskiyou County				
Allen Ranch	Happy Camp	h	Northern Dredging Company	310 Kearny St., San Francisco
Brasswire Gulch	Hornbrook	c-h	Thompson Dredge	400 4th St., Yreka
Buzzard Hill	Happy Camp	a	Merriam Mining Merger	Box 68, Happy Camp
C & E Dredge	Fort Jones	h	C & E Dredging Company	Fort Jones
Calkins & Rose Properties	Yreka	k	E. A. Kinkle	Yreka
		h	Lincoln Gold Dredging Company	Lincoln
Dania	Hornbrook	h	Jacob C. Larsen	Rt. 4, Box 2220, Sacramento
Dredge River Claim	Sawyers Bar	h	Salmon River Gold Dredging Company	310 Kearny St., San Francisco
Etna Dredge	Callahan	e	Etna Gold Dredging Company	1730 Franklin St., Oakland
Hayden	Callahan	h	Okoro Mines, Inc., J. and R. V. Hayden, and Ralph Johnson	Callahan
Horne Patent	Forks of Salmon	h	Salmon River Gold Dredging Company	310 Kearny St., San Francisco
Humbug Creek	Yreka	h	Van der Hellen & Webber	Box 217, Yreka
Indian Creek	Yreka	h	Beaver Dredging Company	Box 278, Yreka
Joubert	Sawyers Bar	g	H. J. Dickinson, Stanley Czerwinski and Gibson & Wilson	Sawyers Bar
Kangaroo Creek	Callahan	h	Oro Trinity Dredging Company	Box 212, Oroville
Klamath River	Yreka	h	William von der Hellen Mining Company	Box 158, Yreka
Midland	Sawyers Bar	h	Midland Company, Inc.	Box 8, Sawyers Bar
Moccasin	Horse Creek	h	Jacob C. Larsen	Rt. 4, Box 2220, Sacramento
Neville Property	Yreka	h	McQueen & Downing	125 Dexter St., Yreka
Quartz Hill	Scott Bar	a	George C. Noonan, et al.	Scott Bar
Scandia	Horse Creek	h	Jacob C. Larsen	Rt. 4, Box 2220, Sacramento
Schroeder	Yreka	a	Schroeder Mining & Development Company	Yreka
Siskiyou Unit	Callahan	e	Yuba Cons. Gold Fields	351 California St., San Francisco
Surveyor's Mistake	Klamath River	k	Henry Bauman	Klamath River
Yreka Dredge	Seiad Valley	e	Yreka Gold Dredging Company	351 California St., San Francisco
Stanislaus County				
Dredge No. 4	La Grange	e	La Grange Gold Dredging Company	1805 Mills Tower, San Francisco
Higginbotham Property	La Grange	h	Charles F. Vanciel, Will B. Thorp, and L. A. Johnson	Rt. 2, Oakdale
Placer Properties Company	Oakdale	h	Placer Properties Company	Box 532, Oakdale
Tuolumne Gold Dredge	La Grange	e	Tuolumne Gold Dredging Company	1 Montgomery St., San Francisco

a. Lode gold mine. b. Gold-silver mine. c. Tailings dump. d. Pocket. e. Dredge (bucketline). f. Drift mine. g. Hydraulic mine. h. Dragline operations. j. Copper mine. k. Power shovel or dry land dredge. m. Lead mine.

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GOLD—Continued

Principal gold producers in California during 1941 out of a total of 1,559 placer operators and lode mines

Mine	Location of mine	Type of mine	Operator	Address of operator
Trinity County				
Albiez Property	Hayfork	h	Cinco Mineros Dredging Company	Box 212, Oroville
Bazet Estate Property	Weaverville	h	Oscar R. Batham	Weaverville
M. A. Brady Property	Weaverville	h	Dobbin Gulch Dredging Company	1539 Placer St., Redding
M. K. Brown Property	Weaverville	h	B. H. K. Mines	Box 325, Orland
Brown Creek		h	J. P. Brennan	1343 Butte St., Redding
Canyon Placers	Junction City	g	G. H. Bergin	Junction City
Carr Ranch	Trinity Center	e	Carrville Gold Company	351 California St., San Francisco
Clark-Jansen Property, et al	Hayfork	h	Lincoln Gold Dredging Company	Lincoln
Eastman	Lewiston	h - k	Havilah Gravels, Inc. and J. W. Martin	Lewiston
Hamilton Property	Douglas City	h	Sunshine Dredging Co., Three Way Mines, and Placer Exploration Company	Douglas City
High Channel Group	Hayfork	h - g	E. J. Gunther, et al	Hayfork
Junction City Dredge	Junction City	e	Junction City Mining Company	Junction City
La Grange	Weaverville	h - g	Weaver Dredging Co., La Grange Placer Mines, Ltd., W. M. Atwood, and Horton Bros.	Weaverville
Lewiston Placers	Lewiston	g	Lewiston Placers	Lewiston
North Fork	Helena	g	North Fork Placer Mining Company	Helena
Parmenter Property	Hayfork	h	Cinco Mineros Dredging Company	Box 212, Oroville
Phillips Property	Lewiston	h-g	Lincoln Gold Dredging Company Lewiston Placers	Lincoln Lewiston
Red Hill	Junction City	g	Goldfield Cons. Mines Company Golden Gravel Mining Company	1 Montgomery St., San Francisco Junction City
Rehberger Property	Weaverville	h	B. H. K. Mines	Box 325, Orland
Rex	Weaverville	g	Willis E. Woodbury	Weaverville
Ross Property	Hayfork	h	Cinco Mineros Dredging Company	Box 212, Oroville
Scharr Property	Weaverville	h	B. H. K. Mines	Box 325, Orland
Swanson	Salyer	g	Swanson Mining Corporation	Salyer
Tout & Gasper Property	Douglas City	h	Viking Dredging Company, and Placer Exploration Company	Chico
Trimble Property	Hayfork	h	Cinco Mineros Dredging Company	Box 212, Oroville
Tuolumne County				
Densmore	Columbia	a	Densmore Mines	Columbia
Dondero	Sonora	h	Mullin-Hampton Dredging Company	Sonora
Eagle Shawmut	Chinese Camp	a	Miller & Clemson	4800 Santa Fe Ave., Los Angeles
La Guria	Groveland	a	La Guria Gold Mining Company	Groveland

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Menke-Hess	Jamestown	k	Rio Development Company and McMillan & Company	Jamestown
Rosasco Property	Sonora	h	Edward A. Kent	260 California St., San Francisco
Sanguinetti Property	Jamestown	h	Edward A. Kent	260 California St., San Francisco
Six Bit	Jamestown	h	Edward A. Kent	260 California St., San Francisco
Yuba County				
Corley	La Porte	c - h	R. & M. Mining Company and M. J. Corley	La Porte
First Chance	La Porte	h	R. & M. Mining Company	La Porte
Pennsylvania & Dannebroge	Browns Valley	a	Empire Star Mines Co., Ltd.	Grass Valley
Rose Property	Oregonhouse	k	Dove Mining Company	Oregonhouse
Williams Bar Dredge	Marysville	e	Williams Bar Dredging Company	232 Montgomery St., San Francisco
Yuba Unit	Hammonton	e	Yuba Cons. Gold Fields	351 California St., San Francisco

a. Lode gold mine. b. Gold-silver mine. c. Tailings dump. d. Pocket. e. Dredge (bucketline). f. Drift mine. g. Hydraulic mine. h. Dragline operations. j. Copper mine. k. Power shovel or dry land dredge. m. Lead mine.

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GRANITE

Operator	Product	Address	Location of quarry
Fresno County			
Superior-Academy Granite Co.	a	Clovis	Academy
Lassen County			
Greig Quarry, A. D. Greig	a	Susanville	Susanville
Los Angeles County			
Binder Bros., W. H. Binder	d	285 N. Lake Ave., Pasadena	Bouquet Canyon
Madera County			
Madera Quarries Co.	a	Box 156, Madera	Bates Station
Placer County			
Union Granite Co., Ruhkala Bros.	a	Rocklin	Rocklin
Victor Wickman	a	Rocklin	Rocklin
Riverside County			
Emil Johnson	a	Perris	Perris
Sacramento County			
Folsom State Prison	a, e	Represa	Represa
San Bernardino County			
Texas Quarries, Inc., R. M. Richter	a	Box 605, Victorville	Victorville
San Diego County			
American Marble & Granite Works	a	1212 E. Olympic Blvd., Los Angeles	Santee
Crystal Black Quarry, John Stridsburg	a	Escondido	Spooks Canyon
Pacific Cut Stone & Granite Co.	a	414 S. Marengo Ave., Alhambra	Escondido
Sonoma County			
S. Cabrol	b, c	Glen Ellen	Glen Ellen

a. Granite used in building and monumental stone. b. Tuff used as building stone. c. Volcanic rock used as flagstone and building stone. d. Mica schist used as building stone. e. Paving blocks.

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GYPSUM

Operator	Address	Location of quarry
Alameda County		
Westvaco Chlorine Prod. Corp.*	Newark	Newark
Fresno County		
O. L. Divens and A. A. Conrowe	Dos Palos	Dos Palos
Imperial County		
Imperial Gypsum Quarry, Pacific Portland Cement	417 Montgomery St., San Francisco	Plaster City
Kern County		
Green & Collins	Ceres	McKittrick
Handel & Son	Shafter	Lost Hills
H. M. Holloway	Box 310, Lost Hills	Lost Hills
Koehn Gypsum Plant, J. E. Daly	Cantil	Saltdale
Theta Gypsum Co.	Lost Hills	Lost Hills
Valley Agricultural Gypsum Co.	Box 186, Shafter	Belridge
Western Gypsum Co.	Box 846, McKittrick	McKittrick
Monterey County		
Triangle Fertilizer Co.	Salinas	King City
Riverside County		
U. S. Gypsum Co.	507 Architects Bldg., Los Angeles	Midland
Ventura County		
A. H. Lange	Box 194, Tehachapi	Cuyana Valley

* Output not included in production figures as gypsum is by-product of chemical process using minerals already included in State total.

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IODINE

Operator	Address	Mine
Los Angeles County		
The Dow Chemical Co.	Midland, Mich.	Long Beach and Venice

IRON

Operator	Address	Location of mine
Inyo County		
L. E. Netherton	Red Mountain	Inyokern
San Bernardino County		
Cave Canyon Iron Mine, A. S. Vinell Co.	1100 Westminister Ave., Alhambra	Baxter
Santa Cruz County		
Coast Metals & Reduction Co.	Rob-Roy, c/o Watsonville	Aptos

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LEAD

10,000 pounds or more in 1941

Mine	Operator	Address	Postoffice of mine
Amador County			
----------	V. R. Fitzsimmons	Jackson	Jackson
Inyo County			
Columbia No. 2	Shoshone Mines, Inc.	Tecopa	Tecopa
Darwin Silver Lead	Imperial Metals, Inc.	811 W. 7th St., Los Angeles	Darwin
Gold King	O. A. Mittendorf and W. M. Smith	Olancha	Olancha
Hughes Lead	A. Dean and R. Preston	Independence	Trona
Old Gold	Old Gold Mines Company	Trona	Trona
Westgard	Westgard Cons. Mining Company	Westgard Pass, Big Pine	Big Pine
----------	Paul Braun	Darwin	Darwin
Kern County			
Big Blue	Kern Mines, Inc.	260 California St., San Francisco	Kernville
Mono County			
Mammoth	Mono Mammoth Mines, Inc.	Mammoth Lakes	Mammoth Lakes
Nevada County			
Lava Cap	Lava Cap Gold Mining Corp.	Nevada City	Nevada City
Orange County			
Silverado	Blue Light Silver Mines, Inc.	508 Chapman Bldg., Fullerton	Fullerton
Placer County			
Alabama	Alabama California Gold Mines Company	Box 488, Auburn	Auburn
Plumas County			
Walker	Walker Mining Company	821 Kearns Bldg., Salt Lake City, Utah	Walkermine
San Bernardino County			
Iron Horse	Tony Marteletti	524 Linden St., Las Vegas, Nevada	Cima
Sierra County			
Alaska	H. L. Sorensen	685 6th St., San Francisco	Pike

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LIME AND LIMESTONE

Operator	Product	Address	Location of quarry
Alameda County			
Westvaco Chlorine Prod. Corp.	a, d,	Newark	Newark
El Dorado County			
Auburn Chemical Lime Co., Ltd.	a, b	Auburn	Newcastle
Diamond Springs Lime Co.	a, b, c	Diamond Springs	Diamond Springs
El Dorado Limestone Co., J. H. Bell, Pres.	b	Shingle Springs	Shingle Springs
Inyo County			
Blue Star Talc Mine, Ltd.	a, b	810 S. Spring St., Los Angeles	Zurich
Los Angeles County			
W. F. Glasser, Inc.	b	713 N. Sepulveda, Brentwood Heights, Los Angeles	
Riverside County			
Howard Small	b, c	311 Main St., Riverside	Riverside
San Bernardino County			
Cal. Portland Cement Co.	a	601 W. 5th St., Los Angeles	Colton
Chubbuck Lime Co., Chas. I. Chubbuck	a, b, c	5000 Worth St., Los Angeles	Chubbuck
Victorville Lime Rock Co.	b	5225 Wilshire Blvd., Los Angeles	Victorville
San Luis Obispo County			
Charles Taylor	b	Salinas	Cambria
San Mateo County			
Pacific Portland Cement Co.	c, d	417 Montgomery St., San Francisco	Redwood City
Santa Clara County			
Bay Shell Co.	c, d	503 Market St., San Francisco	Alviso
Beck Dredging Co.	c, d	Box 113, Coloma	Alviso
Permanente Corp.	a, b	Box 29, San Jose	Los Altos
Santa Cruz County			
Henry Cowell Lime and Cement Co.	a, b	2 Market St., San Francisco	Santa Cruz
Pacific Limestone Prod. Co.	b, c	Spring St., Santa Cruz	Santa Cruz
Santa Cruz Portland Cement Co.	b	Crocker Bldg., San Francisco	Davenport
Tuolumne County			
W. S. McLean's, Lew A. McEachran	b	Box 44, San Francisco	Sonora
U. S. Lime Products Corp.	a, b	58 Sutter St., San Francisco	Sonora

a. Producer of burnt lime. b. Producer of limestone. c. Agricultural lime. d. Shells. e. Marl.

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LITHIA

Operator	Address	Location of mine
American Potash & Chemical Corp.	Trona	Trona

MAGNESITE

Operator	Address	Location of mine
Alameda County		
Westvaco Chlorine Prod. Corp.*	405 Lexington Ave., New York, N. Y.	Newark
Magnesite Products Co., Operator Red Mountain Mine	903 Ray Bldg., Oakland	Red Mountain
Santa Clara County		
Westvaco Chlorine Prod. Corp., Lessee, Western Magnesite Mine	405 Lexington Ave., New York, N. Y.	Red Mountain
Stanislaus County		
Westvaco Chlorine Prod. Corp., Lessee, Bald Eagle Mine	405 Lexington Ave., New York, N. Y.	Gustine
Tuolumne County		
Magnesite Products Co., Operator Gray Eagle Mine	903 Ray Bldg., Oakland	Chinese Camp

* Magnesium oxide reduced from sea water and used as magnesite.

MAGNESIUM SALTS

Operator	Product	Address	Location of plant
Alameda County			
Westvaco Chlorine Prod. Corp.	Hydroxide	405 Lexington Ave., New York, N. Y.	Newark
San Diego County			
Westvaco Chlorine Prod. Corp.	Chloride	405 Lexington Ave., New York, N. Y.	San Diego
San Mateo County			
Marine Magnesium Prod. Corp., R. E. Clarke	Carbonate hydroxide and oxide	South San Francisco	South San Francisco
Plant Rubber & Asbestos Works	Carbonate	537 Brannan St., San Francisco	Redwood City

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MANGANESE ORE

Operator	Address	Location of mine
Humboldt County		
The Crossman Co. (a)	Alderpoint	Alderpoint
Imperial County		
V. B. Whedon, Whedon Manganese Mines	214 Bank of America Bldg., Beverly Hills	Glamis
Inyo County		
Manganese, Incorporated (a)	1202 Haas Bldg., Los Angeles	Shoshone
Plumas County		
Cuban-American Holdings Co., James J. Kenney	Mills Bldg., San Francisco	Crescent Mills
Albert E. McKay (b)	503 Divisadero St., San Francisco	Greenville
Western Manganese Mines (a)	334 Mason St., San Francisco	Crescent Mills
Riverside County		
Mine Development Co. (a)	Box 451, Blythe	Blythe
San Bernardino County		
E. R. K. Maite, c/o W. V. O'Connor	530 W. 6th St., Los Angeles	Owl Springs
Natural Resources, Inc.	1137 S. Hayworth Ave., Los Angeles	Baker
Stanislaus County		
Verner Allen, Buckeye Mine	150 Montgomery St., San Francisco	Vernalis
C. A. Bettilyou (b)	1720 Nason St., Alameda	Tracy
J. P. Warren	605 Market St., San Francisco	Vernalis
Western Manganese Co. (a)	519 California St., San Francisco	Patterson
M. A. Wright, Tip Top Mine	2807 Piedmont Ave., Berkeley	Vernalis
Trinity County		
R. F. Helmke (b)	Alderpoint	Alderpoint
Vance & Barnes	1305 Franklin St., Oakland	

a. Started shipping after January 1, 1942. b. Mined in 1941 but did not ship ore.

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MARBLE (Including Onyx and Travertine)

Operator	Product	Address	Location of quarry
Los Angeles County			
W. F. Glasser, Inc.	a	713 N. Sepulveda	Brentwood Heights
Santa Barbara County			
G. Antolini	b	111 E. Guitierrez St., Santa Barbara	Tiguas
Solano County			
United Quarries, Inc.	c	666 Mission St., San Francisco	Cement
Tuolumne County			
Columbia Marble, Inc.	a	85 2d St., San Francisco	Columbia

a. Marble. b. Limestone, building and flagstone. c. Onyx and travertine.

MICA

Operator	Address	Location of mine
Imperial County		
Western Non-Metallic Co.	Ogilby	Ogilby
Inyo County		
L. S. McGirk	Shoshone	Shoshone
Mariposa County		
Sierra Minerals Co.	2455 E. 57th St., Los Angeles	Bridgeport

MINERAL PAINT

Operator	Address	Location of property
San Bernardino County		
Rowe-Buehler Mining Co., Wesley N. Rowe	919 E. Valley Blvd., Rosemead	Lavic

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MINERAL WATER

Operator	Address	Location of spring
Butte County		
Richardson Mineral Springs, Lee Richardson, Mgr.	Richardson Springs	Richardson Springs
Calaveras County		
Mok-Hill Mineral Springs, Cavanaugh & Pierovich	Jackson	Mokelumne Hill
Colusa County		
Cooks Springs, Don Mason	Williams	Cooks Springs
Contra Costa County		
Alhambra Water Co.	Martinez	Martinez
Fox Water Co.	675 37th St., Oakland	Oak Springs
Lake County		
Adams Mineral Springs, Clarence Prather	Adams, via Middletown	Adams
Bartlett Springs Co.	Bartlett Springs, via Williams	Bartlett Springs
Howard Hot Springs, J. P. Francisco	Middletown	Middletown
Norman Mineral Springs, H. C. Norman, Mgr.	Middletown	Middletown
Witter Medical Springs, W. E. Whitaker	1234 5th Ave., San Francisco	Witter Springs
Los Angeles County		
Deep Rock Artesian Water	4416 York Blvd., Los Angeles	Los Angeles
Elysian Spring Water Co.	1536 Baxter, Los Angeles	Los Angeles
Frespuro Artesian Water	4430 York Blvd., Los Angeles	Los Angeles
Holly Spring Water	2298 Holly Dr., Los Angeles	Los Angeles
Indian Head Mineral Water	3640 N. Griffin Ave., Los Angeles	Los Angeles
Magnetic Spring Water Co.	936 Palm Ave., Sherman	Los Angeles
Mission Spring Water Co.	8938 Keith, Hollywood	Hollywood
Mountain Spring Water Co.	226 S. Avenue 54, Los Angeles	Los Angeles
Sparklett Bottled Water Corp.	4500 York Blvd., Los Angeles	Los Angeles
Main County		
Purity Spring Water Co.	2032 Kearny St., San Francisco	
Napa County		
Calistoga Bottling Works, Ernest Main in i	Calistoga	Calistoga
Napa Soda Springs Co., G. H. T. Jackso n	315 Montgomery St., San Francisco	Napa
Napa Vichy Springs, V. Frugoli	146 11th St., San Francisco	Napa
Samuels Soda Springs, H. F. Watson	Monticello	Monticello
Orange County		
La Vida Mineral Springs Co.	Route 1, Placentia	Carbon Canyon

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Placer County		
Kilaga Water Co.	Lincoln	Valley
Riverside County		
Beulah Springs, Oscar C. McNicholl	Arlington	Arlington
San Bernardino County		
Arrowhead & Puritas Waters, Inc.	1566 E. Washington Blvd., Los Angeles	Arrowhead
San Diego County		
Cuyamaca Mineral Water, San Diego Ice & Cold Storage Co.	67 8th St., San Diego	San Diego
Rock Springs Co., E. S. Walck	Route 2, Box 442, Escondido	Escondido
San Francisco County		
Blue Crest Beverage Co., Morris & Paul Greenberg	265 Naples St., San Francisco	San Francisco
San Luis Obispo		
Crystal Spring Water Co., W. R. Hudson	Route 2, Box 11, San Luis Obispo	San Luis Obispo
Santa Barbara County		
Veronica Mineral Springs Co.	699 Brannan St., San Francisco	Santa Barbara
Siskiyou County		
Coca Cola Bottling Co., Fred J. Meamber, Prop.	Yreka	Little Shasta
The Shasta Water Co.	6th and Brannan Sts., San Francisco	Dunsmuir
Sonoma County		
Agua Caliente Springs Co., T. H. Corcoran, Prop.	Agua Caliente	Agua Caliente
Barcal Springs, John Kolling	Cloverdale	Cloverdale
Boyes Springs Mineral Water Co.	Boyes Springs	Boyes Springs
Fetters Mineral Springs, George Fetters	Fetters Springs	Fetters Springs

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MOLYBDENUM ORE

Mine	Operator	Address	Location of mine
Pine Creek Mine	United States Vanadium Corp.	Bishop	Bishop

PLATINUM

Principal Platinum Producers in California in 1940

Operator	Address	Location of mine
Butte County		
Yuba Cons. Gold Fields Co.*	351 California St., San Francisco	Rio Bonito
Merced County		
Merced Dredging Co.	Mills Bldg., San Francisco	Snelling
San Joaquin Milling Co.	Mills Bldg., San Francisco	Snelling
Yuba Consolidated Gold Field*	351 California St., San Francisco	Snelling
Sacramento County		
Capital Dredging Co.	351 California St., San Francisco	Folsom, Sloughhouse
Natomas Co.*	Forum Bldg., Sacramento	Natomas
Trinity County		
Cinco Minersa Co.	Box 212, Oroville	Hayfork
Junction City Mining Co.	Junction City	Junction City
Yuba County		
Yuba Consolidated Gold Fields*	351 California St., San Francisco	Hammonton

* Platinum metals not sold in 1941.

POTASH

Operator	Address	Location of plant
San Bernardino County		
American Potash and Chemical Co.	Trona	Trona

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PUMICE OR VOLCANIC ASH

Operator	Product	Address	Location of property
Amador County			
Industrial Minerals & Chemical Co.	b	836 Gilman St., Berkeley	Edwin
Inyo County			
American Pumice Co.	a	4031 Goodwin Ave., Los Angeles	Little Lake
Chas. Brown	a	Shoshone	Shoshone
Straight Line Pumice Co., B. J. Compton	a	602 Woodrow St., Bakersfield	Coso Junction
Kern County			
Calsilico Corp., G. A. Reynolds	b	445 S. Amalia Ave., Los Angeles	Cantil
Cudahy Packing Co.	b	803 Macy St., Los Angeles	Ceneda
Madera County			
Calif. Industrial Minerals, c/o Forrest S. Taylor	b	Friant	Friant
Elmer Erickson	a	Friant	Friant
Pacific Pumice Materials Co., W. E. Schlink	a	1047 N. Hunter St., Stockton	Friant
Modoc County			
Glass Mt. Volcolite Co., H. W. Free	b, c	Tionesta	Tionesta
Mono County			
American Pumice Co.	a	4031 Goodwin Ave., Los Angeles	Laws
Alexander Jamieson	d	Box 704, Big Pine	Big Pine
Napa County			
Basalt Rock Co.	a	8th St., Napa	Monticello
San Luis Obispo County			
Red Eagle Mine, M. L. Francis	b	Creston	Creston
Siskiyou County			
Glass Mt. Volcolite Co., H. W. Free	a, c, d	Tionesta	Glass Mountain
E. L. Jameson	a, d	Tennant	Tennant
J. W. Killinger	a	255 California St., San Francisco	Pumice Mountain
Klamath Concrete Pipe Co.	a	Klamath Falls, Ore.	Glass Mountain

a. Pumice, aggregate. b. Volcanic ash. c. Scoria. d. Pumice for scouring brick.

PYRITE

Operator	Address	Location of mine
Shasta County		
Mountain Copper Co., Wm. F. Kett, Mgr.	351 California St., San Francisco	Matheson

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QUICKSILVER

Principal Producer in California for 1941, Out of a Total of 98 Operating Properties

Mine	Operator	Address	Postoffice of mine
Colusa County			
Manzanita	Douglas Mercury Co., Egbert T. Willard	Mills Bldg., San Francisco	Wilbur Springs
Contra Costa County			
Mt. Diablo	Bradley Mining Co.	Crocker Bldg., San Francisco	Clayton
Fresno County			
Archer	Joseph Byles & Sons	Coalinga	Coalinga
Rita	R. Garcia et al.	Idria	Idria
Lake County			
Abbott	International Metals Development Inc.	903 Hoge Bdg., Seattle, Washington	Wilbur Springs
Great Western	Bradley Mining Co.	Crocker Bldg., San Francisco	Middletown
Little Mirabel	A. Terry & Rex Urban	Middletown	Middletown
Midway	V. C. Harrison	Box 52, Middletown	Middletown
Mirabel	Mirabel Quicksilver Co.	Middletown	Middletown
Otto	J. O. Hinkle & F. W. Thompson	Middletown	Middletown
Sulphur Bank	Bradley Mining Co.	Crocker Bldg., San Francisco	Lower Lake
Monterey County			
Dawson Pit	C. C. Jones	Avenal	Avenal
Napa County			
Aetna	J. F. Knapp	1401 Park Ave., Oakland	Aetna Springs
Ivanho	Harry Patton	Calistoga	Pope Valley
Knoxville	Geo. E. Gamble	1431 Waverly St., Palo Alto	Monticello
Manhattan Mine	Chas. Wilson & W. M. Hickox	Monticello	Monticello
Oat Hill	Oat Hill Mine, Inc.	10 Penthouse, Mills Bldg., San Francisco	Aetna Springs
Oat Hill Extension	Zack Anderson	Middletown	Aetna Springs
Toyon	Frank H. Adams	Pope Valley	Pope Valley
San Benito County			
Aurora	North American Mining Co.	75 Federal St., Boston, Mass.	Idria
Clear Creek	M. E. Webster	Box 64, Mendotta	Idria
El Rey	Ben A. Williams	221 Katherine St., Salinas	Llanada
4th of July	E. L. Epperson	San Benito	Hernandez
Lea-Grant	Spencer Grant	206 Sansome St., San Francisco	Paicines
Lone Oak	Andrew Balderama	Paicines	Paicines
Lucky Strike	George W. McIntyre	117 Glendora Ave., Long Beach	Paicines
New Idria	New Idria Quicksilver Mining Co.	Mills Bldg., San Francisco	Idria

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Panoche	Panoche Quicksilver Mining Co., P. D. Burtt	1018 Mills Bldg., San Francisco	Llanada
Stayton Quicksilver	R. B. Knox	Hollister	Hollister
Wonder	Paul Gonzales	Box 268, Soledad	Idria
San Luis Obispo County			
Buena Vista	A. R. McCartney	Salinas	Paso Robles
Klau	H. W. Gould & Co.	Mills Bldg., San Francisco	Adelaide
La Libertad	C. C. Thompson (owner)	7-X Ranch, Paso Robles	Paso Robles
Little Bonanza	Oscar E. Hanno	Cambria	Cambria
Oceanic	American Quicksilver Co.	2835 Santa Fe Ave., Los Angeles	Cambria
Polar Star	Walter R. Harris	Box 117, Paso Robles	San Simeon
Rinconada	Rinconada Quicksilver Mines	Santa Margarita	Santa Margarita
Santa Barbara County			
Los Prietos	Falcon Mercury Co.	Box 117, Santa Barbara	Santa Barbara
Red Rock	Red Canyon Mining Co.	Box 296, Solvang	Solvang
Santa Clara County			
Guadalupe	Laco Mining Co., H. N. Mason	Rt. 3, Box 412, Los Gatos	Los Gatos
Hunt & Grunt	Frank B. Pfeiffer	Almaden	Almaden
New Almaden	New Almaden Corp., C. N. Schuette, Gen. Mgr.	Call Bldg., San Francisco	Almaden
New Almaden Dump	Alders & Prather	Almaden	Almaden
Siskiyou County			
Great Northern	White Yates Mining Co., Ltd.	636 W. Miner St., Yreka	Hornbrook
Sonoma County			
Cina	Graf & Watson	Cloverdale	Cloverdale
Cloverdale	Schor, Rocca & Garcia	Cloverdale	Cloverdale
Contact & Socrates	Contact Mining Co.	1071 3d St., Santa Rosa	Pine Flat
Culver Bear	C. A. Bumester	Cloverdale	Cloverdale
Culver Bear	American Concrete Pipe & Steel Co.*	4635 Firestone Blvd., Los Angeles	Cloverdale
Great Eastern	Magee Mercury, Inc.	69 Sutter St., San Francisco	Guerneville
Mt. Jackson	Sonoma Quicksilver Mine, Inc.	58 Sutter St., San Francisco	Guerneville
Skaggs Springs	Star Springs Mercury, Inc.	Skaggs Springs	Skaggs Springs
Trinity County			
Altoona	Altoona Quicksilver Mining Co., C. W. Erickson	98 Cervantes Blvd., San Francisco	Castella
Yolo County			
Harrison	P. R. McCutchen	921 S. Bedford St., Los Angeles	Rumsey
Reed	Bradley Mining Co.	922 Crocker Bldg., San Francisco	Rumsey

* First part of 1941.

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SALT

Operator	Address	Location of plant
Alameda County		
American Salt Co., Mrs. Mary Marsicano	2970 Lake St., San Francisco	Mt. Eden
Leslie Salt Co.	310 Sansome St., San Francisco	Newark and Mt. Eden
Oliver Bros. Salt Co.	Mt. Eden	Mt. Eden
Butte County		
Richardson Mineral Springs, Lee Richardson, Mgr.	Richardson Springs	Richardson Springs
Imperial County		
Imperial Salt Co.	4000 E. Washington Blvd., Los Angeles	Calipatria
Mullet Island Salt Works	Niland	Niland
Kern County		
Long Beach Salt Co.	P.O. Box 28, Long Beach	Saltdale
Los Angeles County		
Long Beach Salt Co.	P.O. Box 28, Long Beach	Long Beach
Monterey County		
Monterey Bay Salt Works, E. C. Vierra, Mgr.	Moss Landing	Moss Landing
Orange County		
The Irvine Co.	Tustin	Tustin
San Bernardino County		
California Rock-Salt Co.	2465 Hunter St., Los Angeles	Amboy
Rock Salt Products Co.	845 El Centro St., South Pasadena	Salt Marsh
San Diego County		
Western Salt Co.	1245 National Ave., San Diego	San Diego

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SANDSTONE

Operator	Address	Location of quarry
Colusa County		
H. F. Galbreath	1668 Lincoln St., Berkeley	
Los Angeles County		
W. F. Glasser, Inc.	713 N. Sepulveda, Brentwood Heights, Los Angeles	Brentwood Heights
Monterey County		
Carmel Stone Quarry, A. L. Possadori	Carmel	Carmel
Sierra Quarry, H. E. Rogers	Box 136, Carmel	Carmel
Napa County		
H. F. Galbreath	1668 Lincoln St., Berkeley	
Riverside County		
Emil Johnson	Perris	Perris
San Luis Obispo County		
Mora Bros.	Box 121, Cambria	Cambria
C. A. Nidever	R.F.D. 1, Box 56, Paso Robles	Paso Robles
Shasta County		
H. F. Galbreath	1668 Lincoln St., Berkeley	Ono

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SILICA

Operator	Product	Address	Location of mine
Contra Costa County			
Hazel-Atlas Glass Co. of California, Ltd.	b	89th and G Sts., Oakland	Summerville
Silica Co. of California, Ltd.	b	Brentwood	Brentwood
Kern County			
A. H. Lange	a	Box 194, Tehachapi	Tehachapi
Orange County			
Arnold Clay Mine, I. P. Arnold	b	1846 W. 83d St., Los Angeles	El Toro
Riverside County			
P. J. Weisel, Inc.	b	La Habra	Corona
San Bernardino County			
Gladding, McBean & Co.	a	2901 Los Feliz Blvd., Los Angeles	
Temescal Clay Co.	c	5601 S. Boyle Ave., Los Angeles	Victorville
San Diego County			
American Radiator & Standard Sanitary Corp.	a	Campo	Campo
Alfred Dawson	a	Box 103, Del Mar	Del Mar

a. Quartz. b. Glass sand. c. Quartzite.

SILLIMANITE-ANDALUSITE-CYANITE GROUP

Operator	Product	Address	Location of mine
Imperial County			
Vitrefrax Co.	Cyanite	500 Pacific St., Vernon, Los Angeles	Ogilby
Mono County			
Champion Sillimanite, Inc.	Andalusite	Box 117, Laws	Mocalno

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Mine	Type of mine	Operator	Address	Postoffice of mine
Amador County				
Argonaut	a	Argonaut Mining Co., Ltd.	1404 Humboldt Bank Bldg., San Francisco	Jackson
Central Eureka	a	Central Eureka Mining Company	Sutter Creek	Sutter Creek
Keystone	a	Keystone Mine Syndicate	Amador City	Amador City
Butte County				
Butte Unit	e	Yuba Consolidated Gold Fields	351 California St., San Francisco	Hammonton
Surcease	a	Hoefling Bros.	Box 786, Sacramento	Yankee Hill
Calaveras County				
Carson Hill	a	Carson Hill Gold Mining Corp.	206 Sansome St., San Francisco	Melones
Inyo County				
Columbia No. 2	c	Shoshone Mines, Inc.	Tecopa	Tecopa
Darwin Silver-Lead	c	Imperial Metals, Inc.	811 W. 7th St., Los Angeles	Darwin
Del Norte-Skidoo	a	Del Norte Mining Company	Box 2052, Mojave	Mojave
Old Gold	a	Old Gold Mines Company	Trona	Trona
Pine Creek	k	U. S. Vanadium Corp.	30 E. 42d St., New York, N. Y.	Bishop
Kern County				
Big Blue	a	Kern Mines, Inc.	260 California St., San Francisco	Kernville
Cactus Queen	b	Cactus Mines Company	1206 Pacific Mutual Bldg., Los Angeles	Rosamond
Golden Queen	a	Golden Queen Mining Company	Mojave	Mojave
Lodestar	b	Lodestar Mining Company and Jack Beyer	Mojave	Mojave
Standard Hill	a	Standard Hill Mines Company and Lessee	2 Pine St., San Francisco	Mojave
Tropico	a	Burton Bros. and Lessees	Rosamond	Rosamond
Whitmore	b	Glen Lowry, Joe Marshall, and James Ritchie	Mojave	Mojave
Yellow Aster	c	Anglo-American Mining Corp., Ltd.	206 Sansome St., San Francisco	Randsburg
Mariposa County				
Pine Tree and Josephine	a	Pacific Mining Company	1022 Crocker Bldg., San Francisco	Bear Valley
Mono County				
Monte Christo	a	Monte Christo Mining Company	Box 545, Whittier	Mammoth Lakes
Standard	a	Roseklip Mines Company	206 Sansome St., San Francisco	Bodie
Napa County				
Palisades	b	Helena Consolidated Mines, Inc.	Calistoga	Calistoga

a. Gold mine. b. Gold-Silver mine. c. Lead-Silver mine. e. Gold dredge. f. Silver-Lead-Zinc mine. g. Copper mine. h. Tailings dump. k. By-product tungsten ore.

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SILVER—Continued

Directory of Producers for 1941

Mine	Type of mine	Operator	Address	Postoffice of mine
Nevada County				
Golden Center	a	Cooley Butler	745 Rowan Bldg., Los Angeles	Grass Valley
Idaho-Maryland-Brunswick	a	Idaho Maryland Mines Corp.	Grass Valley	Grass Valley
Lava Cap	a	Lava Cap Gold Mining Corp.	Nevada City	Nevada City
North Star, et al.	a	Empire Star Mines Co., Ltd.	Grass Valley	Grass Valley
Orange County				
Silverado	f	Blue Light Silver Mines, Inc.	508 Chapman Bldg., Fullerton	Fullerton
Placer County				
Alabama	a	Alabama California Gold Mines Company	Box 488, Auburn	Auburn
Oro Fino	a	Oro Fino Consolidated Mines	Box 432, Auburn	Auburn
Plumas County				
Ohio Point (Virgilia)	a	Virgilia Mining Corp.	Virgilia	Virgilia
Walker	j	Walker Mining Company	821 Kearns Bldg., Salt Lake City, Utah	Walkermine
Sacramento County				
Natomas Company	e	Natomas Company	Forum Bldg., Sacramento	Natoma
San Bernardino County				
Bagdad-Chase-Roosevelt	a	Frank W. Royer	Red Mountain	Ludlow
Calico Windblown Tailings	c	Maurice La Jeunesse	Box 388, Yermo	Yermo
Gold Crown	a	Gold Crown Mining Co., Ltd.	714 W. Olympic Blvd., Los Angeles	Twentynine Palms
Kelly	b	Frank W. Royer	Red Mountain	Red Mountain
Silver King-Waterloo	c	J. B. Anthony	Daggett	Daggett
Zenda	c	Lawrence Coke	Box 47, Yermo	Yermo
Shasta County				
Iron Mountain	a	The Mountain Copper Co., Ltd.	351 California St., San Francisco	Matheson
Sierra County				
Original Sixteen to One	a	Original Sixteen to One, Inc. and Sidney & Smith	1611 Russ Bldg., San Francisco	Alleghany
Tuolumne County				
Eagle Shawmut	a	Miller and Clemson	4800 Santa Fe Ave., Los Angeles	Chinese Camp
Yuba County				
Yuba Unit	e	Yuba Consolidated Gold Fields	351 California St., San Francisco	Hammonton

a. Gold mine. b. Gold-Silver mine. c. Lead-Silver mine. e. Gold dredge. f. Silver-Lead-Zinc mine. g. Copper mine. h. Tailings dump. k. By-product tungsten ore.

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SLATE

Operator	Product	Address	Location of quarry
Amador County			
G. J. Alexander	c	Amador City	Martell
El Dorado County			
Pacific Minerals Co., Ltd.	b, c	337 10th St., Richmond	Chili Bar
Tuolumne County			
Walter C. Sundberg	c	Box 653, Sonora	Sonora

b. Granules. c. Flagging.

SOAPSTONE AND TALC

Operator	Product	Address	Location of mine
El Dorado County			
Pacific Minerals Co., Ltd., Chas. S. Renwick, Jr.	a	337 10th St., Richmond	Shrub
Inyo County			
Blue Star Talc Mine, Ltd.	b	810 S. Spring St., Los Angeles	Kingston Mountain
Death Valley Talc Co.	b	806 Trans America Bldg., Los Angeles	Furnace Creek
Pacific Coast Minerals Co.	b	2149 Bay St., Los Angeles	Death Valley
Palmer Development Co.	b	Box 301, Lone Pine	Lone Pine
Sierra Talc Co., Franklin Booth, Mgr.	b	428 Union League Bldg., Los Angeles	Keeler
White Mountain Talc Co., Wm. M. Bonham	b	Lone Pine	Lone Pine
San Bernardino County			
Moorhouse Talc Co.	b	3215 W. 6th St., Los Angeles	Shoshone
Pacific Coast Minerals Co.	b	2149 Bay St., Los Angeles	Silver Lake
Southern Calif. Minerals Co., W. S. Skeoch	b	320 Mission Rd., Los Angeles	Kingston Mountain
Western Talc Co.	b	1901 E. Slauson Ave., Los Angeles	Death Valley

a. Soapstone. b. Talc.

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SODA

Operator	Product	Address	Location of plant
Imperial County			
The American Sulphate Co., C. D. Adams	c	Box 691, Mecca	Mecca
Inyo County			
Natural Soda Products Co.	a, d	405 Montgomery St., San Francisco	Keeler
Pacific Alkali Co.	a, d	1206 Pacific Mutual Bldg., Los Angeles	Bartlett
San Bernardino County			
American Potash & Chemical Co.	a, c	Trona	Trona
Chemical Mines Co., Irving E. Bush, Mgr.	c	1116 Pacific Mutual Bldg., Los Angeles	Dale Lake
Desert Chemical Co.	c	4031 Goodwin Ave., Los Angeles	Amboy
West End Chemical Co.	a	Latham Square Bldg., Oakland	West End

a. Soda ash. c. Salt cake. d. Trona.

STONE, MISCELLANEOUS

Under the heading of 'miscellaneous stone' there are four divisions—crushed rock, grinding mill pebbles, paving blocks, and sand and gravel. Crushed rock includes crushed rock that is used in macadam, ballast and for concrete; also rock used for rubble and riprap.

NOTE.—The California State Highway Commission, the various counties, U. S. Forest Service and U. S. Bureau of Public Roads produce both crushed rock and sand and gravel in various places in the State used in construction and maintenance of highways, but not specified in this listing.

Operator	Product	Address	Location of pit or quarry
Alameda County			
Ariss-Knapp Co.	b	961 41st St., Oakland	
California Rock & Gravel Co.	a	500 Call Bldg., San Francisco	Livermore
J. Catucci	b	1212 18th Ave., Oakland	Oakland
Heafey-Moore Co., Leona Quarry	b	344 High St., Oakland	Oakland
Henry J. Kaiser Co.	a, b	1522 Latham Square Bldg., Oakland	Radum
Kemper Bros.	b	5998 Strabridge Ave., Hayward	Hayward
Langdon Molding Sand, J. H. Langdon	c	R.F.D., Box 89, Niles	Decoto
Leslie Salt Co.	b	310 Sansome St., San Francisco	Newark
W. S. McLean's, Att'n Lew A. McEachran	d	Box 44, San Francisco	Arroyo Mocho
Pacific Coast Aggregates, Inc.	a, b	85 2d St., San Francisco	Eliot and Niles
Alfred W. Petersen	a	Box 943, Livermore	Livermore
A. W. Petersen	a	Box 110, Livermore	Livermore
Thos. B. Russell Quarry, T. B. Russell	b	1192 Russell Way, Hayward	Hayward
San Leandro Rock Co., Lake Chabot Quarry	b	2485 Washington St., San Leandro	Lake Chabot
Superior Rock Co.	b	Broadway and McAdams St., Oakland	Oakland

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Amador County			
Charles Ayers	a	Jackson	Jackson
Butte County			
Bechtel-Kaiser Rock Co., R. J. Kennedy, Mgr.	a, b	Oroville	Oroville
J. E. Johnson Rock Co.	b	Weber Ave. and E St., Stockton	Chico
Livingstone Sand & Gravel	a	Marysville	Marysville
Pacific Coast Aggregates, Inc.	a, b	85 2d St., San Francisco	Oroville
Calaveras County			
R. Nielsen	a	San Andreas	San Andreas
Neilsen Gravel Plant, Att'n R. Nielsen	a	Box 14, San Andreas	San Andreas
Pacific Minerals Co., Ltd.	d	337 10th St., Richmond	Angels
George H. Shaw	f	Comanche	Comanche
Contra Costa County			
Antioch Asphalt Sand Co.	a	2008 Mission St., San Francisco	Antioch
Basalt Rock Co.	a	8th St., Napa	Antioch
Blake Bros. Co., Anson Blake	b	204 Balboa Bldg., San Francisco	Point Richmond
Henry J. Kaiser Co.	a	1522 Latham Square Bldg., Oakland	Antioch and Upton
Stege Quarry, H & B Rock Co.	b	7360 Schmidt Lane, El Cerrito	El Cerrito
The Roberts Bros.	c	Pittsburg	Clayton
Silica Co. of Calif., Ltd.	c	Brentwood	Brentwood
E. Stamm & Sons	a	Antioch	Antioch
El Dorado County			
Diamond Springs Lime Co.	b	Diamond Springs	Diamond Springs
Fresno County			
Central Rock & Sand Co.	a, b	Sanger	Sanger
Central Valley Const. Co.	a	Blackstone & Indianapolis, Fresno	Fresno
Grant-Pacific Rock Co.	a, b	Box 656, Fresno	El Prado
Carl Merk	a	North and Cherry Sts., Fresno	Fresno
Volpa Bros.	a	428 W. Whites Bridge, Fresno	Fresno
Glenn County			
E. B. Bishop	a	Box 325, Orland	Wyo
Southern Pacific Co.	a	65 Market St., San Francisco	Wyo
Humboldt County			
D. A. Boyd	a	R.F.D., Arcata	Arcata
Tom Hull	a	Eureka	Eureka
Northwestern Pacific R.R. Co., Wm. N. Neff, Gen. Sup't	a	Sausalito	Sequoia
Imperial County			
Brawley Concrete Co.	a	Brawley	Brawley
Nixon Pipe Yard	a	Seeley	Seeley
R. T. Pinner	a	Brawley	Brawley
Charles L. Wigg	a	Brawley	Brawley

a. Sand and gravel. b. Crushed rock (macadam, ballast, rubble, rip-rap, etc.). c. Molding sand. d. Granules for roofing, terrazzo. e. Slag and volcanic cinder. f. Tube-mill pebbles. g. Decomposed granite.

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STONE, MISCELLANEOUS—Continued

Under the heading of 'miscellaneous stone' there are four divisions—crushed rock, grinding mill pebbles, paving blocks, and sand and gravel. Crushed rock includes crushed rock that is used in macadam, ballast and for concrete; also rock used for rubble and riprap.

Operator	Product	Address	Location of pit or quarry
Inyo County			
Inyo Marble Co.	d	726-732 E. 29th St., Los Angeles	Lone Pine
Red Mountain Cinder Quarry, Att'n H. P. Thelan	b	Little Lake	Little Lake
Kern County			
Bakersfield Rock and Gravel Co.	a, b	Box 395, Station A, Bakersfield	Bakersfield
C. W. Hartman	a, b	W. Oak St., Bakersfield	Bakersfield
Kern Rock Co., Ltd.	a, b	Box 1697, Bakersfield	Kern River
Valley Rock & Sand Co.	a	804 Irene St., Bakersfield	Bakersfield
Lake County			
Chas. Kuppinger	a	Lakeport	Lakeport
Lassen County			
Red River Lumber Co.	a	Westwood	Westwood
Los Angeles County			
Arrow Rock Co.	a	Box 155, Monrovia	Monrovia
A. T. & S. F. R.R., I. L. Hibbard, Gen. Mgr.	a	609 Kerckhoff Bldg., Los Angeles	Forbes
Guy F. Atkinson Co., et al.	b	Box 259, Long Beach	Santa Catalina
Azusa Rock & Sand Co.	a, b	Rural Delivery, Azusa	Azusa
Richard R. Ball	a	Box 96, Walteria	Walteria
Blue Diamond Corp., Ltd.	a	1650 S. Alameda St., Los Angeles	El Monte and Roscoe
Wm. J. Bonfield	g	2008 Laurel Canyon Rd., Los Angeles	Hollywood
Chandler Palos Verdes S. & G., L. Chandler	a, b	Lomita	Lomita
City Rock Co.	a, b	Box A, Sunland	Sunland
Columbia Construction Co.	b	Box 259, Long Beach	
Consolidated Rock Products Co.	a, b	2730 S. Alameda St., Los Angeles	Whittier and Fullerton
Ducey & Atwood Rock Co., R. K. Atwood, Pres.	a, b	Box 194, East Pasadena	East Pasadena
Eastside Building Materials Co.	a	8830 Santa Monica Blvd., Los Angeles	
W. F. Glasser, Inc.	b	713 N. Sepulveda, Brentwood Heights, Los Angeles	Brentwood Heights
Graham Bros.	a, b	3245 Fowler Ave., Los Angeles	Catalina Island and Roscoe
Granite Material Co.	g	8200 Tujunga Ave., No. Hollywood	Roscoe
John D. Gregg	a, b	Box 110, Whittier	Whittier
Lindauer Corp.	a	Box 208, La Habra	La Habra
Los Angeles Decomposed Granite Co.	g	2171 W. Washington, Los Angeles	Los Angeles
Manning Bros. Rock & Sand Co.	a, b	Irwindale	Irwindale
Moe Bros.	g	8170 Lauremont Dr., Hollywood	Laurel Canyon
Owl Truck & Materials Co.	a	Box 509, Compton	Compton
Pacific Rock & Gravel Co.	a, b	800 Lane Mortgage Bldg., 208 W. 8th St., Los Angeles	
Reynolds Crushed Gravel, Inc.	g	914 N. Humphreys Ave., Los Angeles	

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Security Material Co.	b	1131 N. Highland Ave., Los Angeles	Los Angeles
Edwin Sidebotham & Sons, Inc., Sidebotham Sand Plant	a	McFarland and L Sts., Wilmington	Lomita
J. H. Weadle	a, b	Monrovia	Monrovia
Marin County			
Hutchison Co.	b	329 17th St., Oakland	San Quentin
Marin Gravel Co.	a	Point Reyes	Point Reyes
Mariposa County			
D. W. Dukes	a	Incline	Incline
D. H. Miles	b	Mariposa	Mariposa
Yosemite National Park	a, b	Yosemite	Yosemite Nat'l Park
Mendocino County			
Fork Gravel Co., Kirby Ford	a	Ukiah	Ukiah
John Freitas	a	Ukiah	Ukiah
Merced County			
Bair Creek Sand & Gravel Co., J. W. Huffman	a	Merced	Merced
Los Banos Gravel Co.	a	Rainbow Auto Court, Los Banos	Los Banos
Merced Sand & Gravel Agg. Co.	a	Rt. 1, Box 132, Winton	Winton
Service Trucking Co.	a	Gustine	Gustine
Modoc County			
Great Northern Railway, A. E. Knight, Supt.	e	Klamath Falls, Ore.	Mammoth
Monterey County			
Monterey Sands, Ralph Parsons	a	Box 88, Marina	Marina
Del Monte Properties, C. S. Olmsted	a, c, d, g	Del Monte	Del Monte
M. J. Murphy	a	Monte Verde and 9th Sts., Carmel	Carmel
Pacific Coast Aggregates, Inc.	a	85 2d St., San Francisco	Lapis and Prattco
S. Ruthven, Seaside Sand Pit	a	Seaside	Seaside
Napa County			
Basalt Rock Co.	b	8th St., Napa	Napa
Juarez Quarry, M. G. Reidenbach	b	Napa	Napa
T. F. McGill	a	602 Florida St., Vallejo	
Orange County			
M. Burris	a	Garden Grove	Garden Grove
California Rock Co.	a	Rural Delivery, Orange	Orange
Consolidated Rock Products Co.	a	2730 S. Alameda St., Los Angeles	Fullerton and Orange
Fowler Sand & Gravel Co.	a	1178 S. Flower St., Santa Ana	Santa Ana
Foster Sand & Gravel Co.	a	524 W. Commonwealth, Fullerton	
Graham Bros.	a	3425 Fowler Ave., Los Angeles	San Juan Capistrano
Reynolds Gravel Service	g	Box 499, Orange	Orange
R. L. Robinson	a	140 S. Parker, Orange	Orange
B. [illegible] Stoffel	a	Anaheim	Anaheim

a. Sand and gravel. b. Crushed rock (macadam, ballast, rubble, rip-rap, etc.). c. Molding sand. d. Granules for roofing, terrazzo. e. Slag and volcanic cinder. f. Tube-mill pebbles. g. Decomposed granite.

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STONE, MISCELLANEOUS—Continued

Under the heading of 'miscellaneous stone' there are four divisions—crushed rock, grinding mill pebbles, paving blocks, and sand and gravel. Crushed rock includes crushed rock that is used in macadam, ballast and for concrete; also rock used for rubble and riprap.

Operator	Product	Address	Location of pit or quarry
Placer County			
Union Granite Co., Ruhkala Bros.	b	Rocklin	Rocklin
Plumas County			
Western Pacific R.R. Co., E. W. Mason, Gen. Sup't	b	San Francisco	
Riverside County			
A. T. & S. F. R.R. Co., I. L. Hibbard, Gen. Mgr.	b	609 Kerckhoff Bldg., Los Angeles	Box Springs
Emil Johnson	b	Perris	Perris
Kumpe-Hauser Corp., Ltd., Ormand Quarry	b	Box 827, Riverside	Bly Junction
Kuster & Waterburg	a	Corona	Corona
Service Rock Co.	a	Box 309, Riverside	Riverside
City of Riverside	b	Riverside	Riverside
P. J. Weisel, Industrial Sands	a, c	La Habra	Corona
Sacramento County			
American River Sand & Gravel Co.	a	Box 156, Perkins	Perkins
Brighton Sand & Gravel Co.	a, b	P.O. Box 2604, Sacramento	Sacramento
Canon & Co.	c	Box 281, Sacramento	Ben Ali
Del Paso Rock Products Co.	a, b	Rt. 5, Box 1200, Sacramento	Del Paso
Folsom State Prison	a, b	Represa	Represa
Mucke Sand & Gravel Co.	a, b	1433 57th St., Sacramento	Mayhew
Pacific Coast Aggregates, Inc.	a, b	85 2d St., San Francisco	Fair Oaks, Mahew and American River
Perkins Gravel Co.	a, b	Perkins	Perkins
Robert Powell & Co.	a	Box 815, Sacramento	American River
San Benito County			
Granite Rock Co.	b	Drawer M, Watsonville	Logan
San Bernardino County			
A. T. & S. F. R.R.	a	600 Kerckhoff Bldg., Los Angeles	Gale
Concrete Rock & Sand Co.	a	899 La Cadena St., Colton	Colton
Consolidated Rock Products Co.	a, b	2730 S. Alameda St., Los Angeles	
Geo. Herz & Co.	a	Base Line & Lytle Sts., San Bernardino	San Bernardino
Holiday Rock Co.	a, b	Upland	Upland
Johnson Fourth Street Rock Crusher	a, b	305 Lytle St., San Bernardino	San Bernardino
E. Padgett	a	Barstow	Barstow
Palm Springs Builders' Supply Co.	a, b	Whitewater	Palm Springs
Redlands Gravel Co.	a, b	Redlands	Redlands
San Bernardino Rock & Gravel Co.	a, b	Box 249, San Bernardino	San Bernardino
A. Teichert & Son	b	1846 37th St., Sacramento	
Triangle Rock & Gravel Co.	a, b	San Bernardino	San Bernardino

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San Diego County			
Calaveras Materials Co.	b	Oceanside	Oceanside
Canyon Rock Co.	a, b	Box F, San Diego	San Diego
Claudell & Johnson	a	Box 246, Hillcrest Sta., San Diego	Mission Valley
Crystal Silica Co.	a, c, h	717 E. 61st St., Los Angeles	Oceanside
Daley Corp., Geo. Dailey	a	4430 Boundary St., San Diego	San Diego
H. G. Fenton Material Co.	a, b	13th and Imperial Ave., San Diego	San Diego
Irving P. Howard	a, b	Chollas Rd., San Diego	San Diego
Elvira M. Hubbard	c	406 W. Nutmeg St., San Diego	San Diego
John T. Momand	f	Carlsbad	Carlsbad
Nelson & Sloan	a	Box 832, Chula Vista	Chula Vista
Oceanside Rock & Sand Co.	a, f	Oceanside	Oceanside
D. M. Sebastian	a	Mission Valley, San Diego	
San Francisco County			
Mission Quarry Co.	b	210 Balboa Bldg., San Francisco	San Francisco
San Joaquin County			
Louis F. Flockhart	a	901 S. Pleasant Ave., Lodi	Lodi
Frank B. Marks & Sons	a, b	Newman	Newman
Mokelumne Sand & Gravel Co., D. M. Dyer	a	527 E. Lodi Ave., Lodi	Lodi
Pacific Coast Aggregates, Inc.	a, b	85 2d St., San Francisco	Riverbank
Elmer J. Warner	a	1103 Sycamore, Stockton	Stockton
San Luis Obispo County			
Guiton Molding Sand, Harold E. Guiton	c	Oceano	Oceano
Harold B. Roselip	a, b	615 Grand Ave., San Luis Obispo	Atascadero
San Mateo County			
Canadas Quarry, M. F. Cunha	b	Main St., Half Moon Bay	Half Moon Bay
Golden West Quarry	b	Geneva and Santos Sts., San Francisco	Colma
Holy Cross Cemetery	b	Colma	Colma
Industrial Mineral Products, J. W. Jessiman	c	230 7th St., San Francisco	South San Francisco
Market Street Railway, Daly's Quarry	b	58 Sutter St., San Francisco	Daly City
Shoreland Co.	b	Pescadero	Pescadero
Santa Barbara County			
Gates Gravel Plant, Frank H. Gates	a	Santa Maria	Sisquoc
H. G. Iliff & Son	a	Santa Maria	Santa Maria
Southern Pacific R.R. Co., Ass't Chief Engineer	b	Southern Pacific Bldg., San Francisco	Arlight
Santa Clara County			
Anderson Gravel Co.	a	Mountain View	Mountain View
Carroll Gravel Pit, R. D. Carroll	a	R.F.D. 14, Box 310A, San Jose	San Jose
Henry Faber	b	Mayfield	Mayfield
Chas. W. Hamilton	a	Senter Rd., San Jose	San Jose
Los Gatos Sand and Gravel Co.	a	Los Gatos	Los Gatos
Pacific Coast Aggregates, Inc.	a, b	85 2d St., San Francisco	Coyote and Campbell
Rhodes & Robinson, Stanford Quarry	b	Box 325, Palo Alto	Palo Alto
Western Gravel Corp.	a	Box 855, Campbell	Campbell

a. Sand and gravel. b. Crushed rock (macadam, ballast, rubble, rip-rap, etc.) c. Molding sand. d. Granules for roofing, terrazzo. e. Slag and volcanic cinder. f. Tube-mill pebbles. g. Decomposed granite. h. Filter and blast sand.

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STONE, MISCELLANEOUS—Continued

Under the heading of 'miscellaneous stone' there are four divisions—crushed rock, grinding mill pebbles, paving blocks, and sand and gravel. Crushed rock includes crushed rock that is used in macadam, ballast and for concrete; also rock used for rubble and riprap.

Operator	Product	Address	Location of pit or quarry
Santa Cruz County			
Henry J. Kaiser Co.	a	1522 Latham Square Bldg., Oakland	Olympia
Pacific Coast Aggregates, Inc.	a	85 2d St., San Francisco	Olympia
Pacific Limestone Products Co.	b	Santa Cruz	Santa Cruz
Shasta County			
Columbia Construction Co., Henry J. Kaiser Co.	a	Latham Square Bldg., Oakland	Cottonwood
Diestelhorst Gravel Plant, Chas. Diestelhorst	a, b	1040 Liberty St., Redding	Redding
Hein Bros. Basalt Rock Co.	a	Petaluma	Redding
Lassen Volcanic Nat'l Park Sup't	a, b	Mineral, via Red Bluff	Lassen Nat'l Park
Oaks Gravel Plant, G. E. Oaks	a	1341 Yuba St., Redding	Girvan
Pacific Gas & Electric Co., Att'n W. G. Vincent	a, b	245 Market St., San Francisco	
City of Redding	a, b	Redding	Redding
Southern Pacific R.R. Co., Ass't Chief Engineer	e	Southern Pacific Bldg., San Francisco	Kennett
Siskiyou County			
James Baker	a	Klamath Falls, Ore.	
A. E. Kottinger	a	Mt. Shasta	Mt. Shasta
W. D. Miller Cons. Co.	a	Box 168, Klamath Falls, Ore.	Graham Siding
Southern Pacific R.R. Co., Ass't Chief Engineer	e	Southern Pacific Bldg., San Francisco	Kegg
A. Young	b	345 N. Main St., Yreka	Yreka
Solano County			
J. M. Nelson, Cordelia Quarry	b	Cordelia	Cordelia
Red Rock Quarry, Ltd.	b	Box 671, Vallejo	Vallejo
Sonoma County			
Basalt Rock Co.	a	8th St., Napa	Healdsburg
Mirabel Gravel Co., S. Congros	a	222 3d St., San Rafael	
Northwest Materials Co.	a	Geyserville	Geyserville
Spaletta & Siri	a	Santa Rosa	Santa Rosa
Hein Bros. Basalt Rock Co., Mark Hein, Pres.	b	Petaluma	Petaluma
Stony Point Quarry, W. A. Wilson	b	Petaluma, Star Route	Stony Point
Stanislaus County			
A. T. & S. F. Railway Co.		560 S. Main St., Los Angeles	
Fox Bros.	a	Hughson	Hughson
Tony Francisco	a	Crows Landing	Crows Landing
Gravel Products Co.	a	Hughson	Hughson
Wes Haslan	a	Oakdale	Oakdale
O. A. Kauffman	a	803 1st St., Modesto	Modesto

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Frank B. Marks & Sons	a	Newman	Newman
Oakdale Irrigation Dist.	a	Oakdale	Oakdale
Pacific Coast Aggregates, Inc.	a, b	85 2d St., San Francisco	Oakdale
Putnam Sand & Gravel Co.	a	Box 486, Modesto	Modesto
J. P. Scanlon, Scanlon Gravel Pit	a	Patterson	Crows Landing
Chas. Warner	a	Modesto	Modesto
Trinity County			
Northwestern Pacific R.R. Co., Wm. N. Neff, Gen. Sup't	b	Sausalito	Island Mountain
Tulare County			
Dinuba Cement Co.	a	Dinuba	Dinuba
O. C. Jeffers	a	1032 River Rd., Porterville	Porterville
Frank B. Marks & Sons	b	Newman	General Grant Park
Porterville Cement Pipe Co.	a	Box 396, Porterville	Porterville
Tuolumne County			
Beerman & Jones	b	Sonora	Soulsbyville
Ventura County			
Montalvo Rock Co.	a	Box 188, Montalvo	Montalvo
Piru Rock Co.	a, b	Piru	Piru
Santa Paula Rock Co.	a, b	Box 671, Santa Paula	Santa Paula
Saticoy Rock Products Co.	a, b	Ventura	Saticoy-Ventura
J. S. Toler	c	1257 Poli St., Ventura	Ventura
A. N. Vela	a	432 N. Oak St., Santa Paula	Santa Paula
Yolo County			
Leroy Kerr	a	Yolo	Yolo
Frank Newman	a	Woodland	Woodland
Joe Schwarzgruber	a	Woodland	Woodland
George Summers	a	Woodland	Woodland
Yolo Gravel Co.	a	Box 7, Yolo	Yolo
Yuba County			
Hemstreet & Bell	a, b	501 11th St., Marysville	Marysville
Pacific Coast Aggregates, Inc.	a	85 2d St., San Francisco	Marysville
Yuba River Sand Co.	a	Marysville	Marsyville

a. Sand and gravel. b. Crushed rock (macadam, ballast, rubble, rip-rap, etc.). c. Molding sand. d. Granules for roofing, terrazzo. e. Slag and volcanic cinder. f. Tube-mill pebbles. g. Decomposed granite.

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STRONTIUM

Operator	Address	Location of mine
Imperial County		
Pan-Chemical Co., John A. Stevens	1396 N. Harvard St., Claremont	Fish Mts.
San Bernardino County		
Rowe-Buehler Mining Co., Wesley N. Rowe	919 E. Valley Blvd., Rosamond	Lovic
Strontium Carbonate Mines, C. Solomin, Jr.	2457 Scott St., San Francisco	Barstow

SULPHUR

Operator	Address	Location of mine
Imperial County		
Vesubio Mining Corp., Louis F. Vremsak, Pres.	Calexico	Calexico
Inyo County		
Pacific Sulphur Co.	433 S. Spring St., Los Angeles	Last Chance Mts.

TITANIUM

Operator	Address	Location of mine
Los Angeles County		
E. I. Du Pont De Nemours & Co.*, T. C. Davis	Du Pont Bldg., Room 12062, Wilmington, Del.	San Gabriel Mts.
Mrs. Harvey R. Smith	421 S. Harvard Blvd., Los Angeles	Hermosa Beach

* Development only in 1941.

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TUNGSTEN

Mine	Operator	Address	Location of mine
Fresno County			
Kings River	B. Baziuk	717 Voorman, Fresno	Kings River
Quigley	Geo. W. Quigley and Perry Root	Box 63, Auberry	Kings River
Garnet Dyke	Sherican, Bennett & Kidder	Kings River Hatchery	Kings River
Inyo County			
Bruce Group	National Tungsten Co.	36 Locust St., Long Beach	Darwin
Crawford Deposit	Tungsten Corp.	6233 Hollywood Blvd., Los Angeles	Bishop
Defiance, et al.	Imperial Metals, Inc.*	811 7th St., Los Angeles	Darwin
Jack Rabbit	El Diablo Mining Co.	Bishop	Bishop
Little McGee Creek	M'Closkey Mines, Inc.*	14926 Alva Drive, Pacific Palisades	Bishop
Panyo Group	K. J. Watkins	Darwin	Darwin
Pine Creek	United States Vanadium Corp.	30 E. 42d St., New York	Bishop
St. Charles, et al.	Pacific Tungsten Co.	9730 Wilshire Blvd., Beverly Hills	Darwin
Tungsten Blue	Bishop Tungsten Corp.	Bishop	Bishop
Kern County			
Gold Wash	M. & N. Tungsten Mining Co.*	1414 Hollywood Way, Burbank	Randsburg
Owl	Sierra Tungsten Co.	Box 1590, Bakersfield	Summit Lodge
Stardust	Dorris & Cuddeback	117 Morban Bldg., Bakersfield	Weldon
Tungsten Chief	T. J. McGee, et al.	Caliente	Caliente
Woody	Tungsten Mines	929 American Ave., Long Beach	Woody
Madera County			
Jones	R. & M. Tungsten Mines, S. S. Rapp	1229 Wilshire Blvd., Santa Monica	Coarse Gold
Mono County			
Black Rock Tungsten	Tungsten Corp. of Calif.	811 W. 7th St., Los Angeles	Benton
Scheelore	H. A. Van Loon	Bishop	McGee Creek
Topaz Lake	Charles H. Segerstrom	1 Church St., Sonora	Topaz Lake
San Bernardino			
Atolia	Atolia Mining Co.	1022 Crocker Bldg., San Francisco	Atolia
----------	Simpson & Richardson	Box 225, Randsburg	Randsburg
San Diego County			
Sundown	B. J. Chamberlain	Warner Springs	Warner Springs
Tulare County			
Tungsten	Tungstore Mines	929 American Ave., Long Beach	Posey

* Did not ship in 1941 but will in 1942.

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ZIRCON

Operator	Address	Location of mine
Placer County		
E. S. Curtis	Box 324, Lincoln	Lincoln

ZINC—10,000 pounds or more

Directory of Producers in California for 1941

Mine	Operator	Address	Postoffice of mine
Inyo County			
Colorado Group (b)	E. H. Snyder	Keeler	Panamint Springs
Orange County			
Silverado (b)	Blue Light Silver Mines, Inc.	508 Chapman Bldg., Fullerton	Fullerton
San Bernardino County			
Carbonate King (e)	W. F. Huston	Mountain Pass, Nipton	Nipton

b. Lead-Zinc Mine.
e Zinc Mine.

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SMELTERS, CUSTOM MILLS, ORE AND METAL BUYERS

Reporting Purchase of California Metals (except Gold and Silver) Produced in 1941

Name	Address	Location of plant	Metals reported purchased
American Smelting & Ref. Co.	120 Broadway, New York, N. Y.	Garfield, Utah	Copper, Lead
American Smelting & Ref. Co.	120 Broadway, New York, N. Y.	Hayden, Ariz.	Copper, Lead
American Smelting & Ref. Co.	120 Broadway, New York, N. Y.	Murray, Utah	Lead
American Smelting & Ref. Co.	405 Montgomery St., San Francisco	Selby, Calif.	Copper, Lead
American Smelting & Ref. Co.	120 Broadway, New York, N. Y.	Tacoma, Wash.	Copper, Lead
C. L. Ach	2309 E. 8th St., Los Angeles	Los Angeles	Tungsten
Atkins-Kroll & Co.	260 California St., San Francisco	San Francisco	Tungsten
Baker & Co., Inc.	Newark, N. J.	Newark, N. Y.	Platinum
Bradley & Ekstrom	320 Market St., San Francisco	San Francisco	Chromite
C & H Mining & Milling Co., Dan Cronin	Weldon	Weldon	Tungsten
Coast Chemical Division F. W. Berk & Co., Inc.	Sharon Bldg, San Francisco	San Francisco	Quicksilver
Columbia Steel Co.	Russ Bldg., San Francisco	Pittsburg, Calif. and Provo, Utah	Chromite and Manganese
General Dry Batteries, Inc.	13000 Athens Ave., Cleveland, Ohio	Cleveland, Ohio	Manganese
S. B. Gracier & Sons	212 Stockton St., San Francisco	San Francisco	Platinum
The Harshaw Chemical Co.	Box 37, El Segundo	El Segundo	Antimony and Quicksilver
International Smelting & Ref. Co.	Tooele, Utah	Tooele, Utah	Copper
Magna Copper Co.	Superior, Ariz.	Superior, Ariz.	Copper
Medford Chemical Co.	1026 Santa Fe, Los Angeles	Los Angeles	Quicksilver
Mercantile Metals & Ore Corp.	60 Wall St., New York, N. Y.	New York	Quicksilver
Minerals Research Co.	316 Colorado Blvd., Glendale, Colo.	Glendale, Colo.	Tungsten
Montgomery Bros.	61 Fremont St., San Francisco	San Francisco	Zircon
Ohio Ferro Alloys Co.	Tacoma, Wash.	Tacoma, Wash.	Chromite
Ore, Metals & Engineering Corp.	112 Market St., San Francisco	San Francisco	Chromite
Pacific Vegetable Oil Co., Bernard T. Rocca	62 Townsend St., San Francisco	San Francisco	Quicksilver
Pacific Zinc Oxide Co.	Richmond	Richmond	Zinc
Henry W. Peabody & Co.	230 California St., San Francisco	San Francisco	Quicksilver
Quicksilver Producers Ass'n, Irving Ballard, Sec'y	407 Sansome St., San Francisco	San Francisco	Quicksilver
Rustless Mining Co., H. F. Byram	924 22d St., Sacramento	Folsom	Chromite
U. S. Smelting, Refining & Mining Co.	Newhouse Bldg., Salt Lake City, Utah	Midvale, Utah	Copper, Lead, Zinc
U. S. Vanadium Corp.	114 Sansome St., San Francisco	San Francisco	Chromite
Vance & Barnes, Ltd.	1305 Franklin St., Oakland	Oakland	Chromite and Manganese
Western Gold & Platinum Works	589 Bryant St., San Francisco	San Francisco	Platinum
Wildberg Bros. Smelting & Ref. Co.	742 Market St., San Francisco	San Francisco	Platinum

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APPENDIX

PUBLIC RESOURCES CODE

An act to establish a Public Resources Code, thereby consolidating and revising the law relating to natural resources, the conservation, utilization, and supervision thereof, and matters incidental thereto, and to repeal certain acts and parts of acts specified herein.

Chapter 93 (Stats. 1939.)

The people of the State of California do enact as follows:

GENERAL PROVISIONS

1. This act shall be known as the Public Resources Code.

2. The provisions of this code, in so far as they are substantially the same as existing provisions relating to the same subject matter shall be construed as restatements and continuations thereof and not as new enactments.

3. All persons who, at the time this code goes into effect, hold office under any of the acts repealed by this code, which offices are continued by this code, continue to hold the same according to the former tenure thereof.

4. No action or proceeding commenced before this code takes effect, and no right accrued, is affected by the provisions of this code, but all procedure thereafter taken therein shall conform to the provisions of this code so far as possible.

5. Unless the context otherwise requires, the general provisions hereinafter set forth shall govern the construction of this code.

6. Division, part, chapter, article, and section headings contained herein shall not be deemed to govern, limit, modify or in any manner affect the scope, meaning, or intent of the provisions of any division, part, chapter, article, or section hereof.

7. Whenever, by the provisions of this code, an administrative power is granted to a public officer or a duty imposed upon such officer, the power may be exercised or the duty performed by a deputy of the officer or by a person authorized pursuant to law.

8. Writing includes any form of recorded message capable of comprehension by ordinary visual means. Whenever any notice, report, statement or record is required by this code, it shall be made in writing in the English language.

9. Whenever any reference is made to any portion of this code or of any other law of this State, such reference shall apply to all amendments and additions thereto now or hereafter made.

10. "Section" means a section of this code unless some other statute is specifically mentioned.

11. The present tense includes the past and future tenses; and the future the present.

12. The masculine gender includes the feminine and neuter.

13. The singular number includes the plural, and the plural the singular.

14. "County" includes "city and county."

15. "Shall" is mandatory and "may" is permissive.

16. "Oath" includes affirmation.

17. "Signature" or "subscription" includes mark when the signer or subscriber can not write, such signer's or subscriber's name being written near the mark by a witness who writes his own name near the signer's or subscriber's name; but a signature or subscription by mark can be acknowledged or can serve as a signature or subscription to a sworn statement only when two witnesses so sign their own names thereto.

18. If any provision of this code, or the application thereof to any person or circumstances, is held invalid the remainder of the code, and the application of its provisions to the other persons or circumstances, shall not be affected thereby.

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DIVISION 1. THE DEPARTMENT OF NATURAL RESOURCES

501. There is in the State government a Department of Natural Resources. The department shall be conducted under the control of an executive officer known as the Director of Natural Resources. The director shall be appointed by and hold office at the pleasure of the Governor and shall receive a salary of six thousand dollars a year.

502. Except as in this division otherwise provided, the provisions of Article 2, Chapter 3, Title 1, Part 3 of the Political Code shall govern and apply to the conduct of the Department of Natural Resources in every respect the same as if such provisions were herein set forth at length, and wherever in that article the term "head of the department" or similar designation occurs, it shall for the purposes of this division mean the Director of Natural Resources.

503. For the purposes of administration the department shall be organized by the director, subject to the approval of the Governor, in such manner as he deems necessary properly to segregate and conduct the work of the department. The director may appoint, in accordance with the civil service and other provisions of law, such deputies, officers, and other expert and clerical assistants as may be necessary.

504. The work of the department shall be divided into at least four divisions, known as Division of Forestry, the Division of Parks, The Division of Fish and Game, and The Division of Mines.

505. The Division of Forestry shall be administered through a chief who shall be known as the State Forester. He shall be a technically trained forester, appointed by the director upon nomination by the State Board of Forestry. General policies for the guidance of the Division of Forestry shall be determined by a State Board of Forestry which shall consist of seven members appointed by and holding office at the pleasure of the Governor. Of the seven members one shall be familiar with the pine timber industry, one with the redwood industry, one with live stock industry, one with general agriculture, and one with the problems of water conservation.

506. The Division of Parks shall be administered through a chief who shall be appointed by the director upon nomination by the State Park Commission. General policies for the administration of the State park system shall be determined by the State Park Commission which shall consist of five members appointed by and holding office at the pleasure of the Governor.

507. The Division of Mines shall be administered through a chief who shall be known as the State Mineralogist. He shall be a technically trained mining engineer, appointed by the director upon nomination by the State Mining Board. General policies for the guidance of the Division of Mines shall be determined by a State Mining Board, which shall consist of five members appointed by and holding office at the pleasure of the Governor.

508. The Division of the Department of Natural Resources for the supervision of oil and gas shall be in charge of a chief, known as the State Oil and Gas Supervisor.

509. The salaries of the chiefs of the Divisions of Forestry and Parks shall be fixed by the director with the approval of the Governor. The director and the chief of each division, before entering upon his duties, shall execute and deliver to the State an official bond in the sum of twenty-five thousand dollars conditioned upon the faithful performance of his duties.

510. The members of the Board of Forestry and the State Park Commission shall serve without compensation, but shall be entitled to their actual necessary expenses incurred in the performance of their duties.

512. The Department of Natural Resources may expend the money in any appropriation or in any special fund in the State treasury made available by law for the administration of the statutes the administration of which is committed to the department, or for the use, support, or maintenance of any board, bureau, commission, department, office, or officer whose duties, powers, and functions have been transferred to and conferred upon the department. Such expenditures by the department shall be made in accordance with law in carrying out the purposes for which the appropriations were made or the special funds created.

513. The department shall have possession and control of all records, books, papers, offices, equipment, supplies, moneys, funds, appropriations, land and other

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property, real or personal held for the benefit or use of all bodies, offices, and officers whose duties, powers, and functions have been transferred to and conferred upon the department.

514. Nothing in this code is intended to supersede, modify or change the effect of the enactment of section 373g of the Political Code, and wherever in this code reference is made to any officer or agency of the Department of Natural Resources, it is made in the sense and with the same legal effect as was attributable thereto in the statute whence derived and which would continue to be so attributable but for the adoption of this code.

DIVISION 2. MINES AND MINING

CHAPTER 1. DEFINITIONS

2001. Unless the context otherwise requires, the definitions hereinafter set forth shall govern the construction of Division 2 of this code.

2002. "Department" in reference to the government of this State, means the Department of Natural Resources.

2003. "Division" in reference to the government of this State, means the Division of Mines in the Department of Natural Resources.

2004. "Person" includes any individual, firm, association, corporation, or any other group or combination acting as a unit.

CHAPTER 2. THE DIVISION OF MINES

2200. For the purposes of this chapter "mine" includes all mineral bearing properties of whatever kind or character, whether underground, quarry, pit, well, spring or other source from which any mineral substance is or may be obtained. "Mineral" for the purposes of this chapter includes all mineral products both metallic and nonmetallic, solid, liquid or gaseous, and mineral waters of whatever kind or character.

2201. The State Mineralogist shall employ competent geologists, field assistants, qualified specialists, and office employees when necessary in the execution of the plans and operations of the division under this chapter and shall fix their compensation.

2202. The State Mineralogist shall maintain offices, and a museum, library, and laboratory in San Francisco for the purposes provided in this chapter.

2203. The State Mineralogist shall make a biennial report to the Governor on or before the fifteenth day of September next preceding the regular session of the Legislature.

2204. The State Mineralogist may receive on behalf of this State, for the use and benefit of the division, gifts, bequests, devices, and legacies of real or other property and may use the same in accordance with the wishes of the donors. If no instructions are given by the donors, the State Mineralogist shall manage, use, and dispose of the gifts, bequests, and legacies for the best interests of the division and in such manner as he may deem proper.

2205. The State Mineralogist shall:

(a) Make, facilitate, and encourage special studies of the mineral resources and mineral industries of the State.

(b) Collect statistics concerning the occurrence and production of the economically important minerals and the methods pursued in making their valuable constituents available for commercial use.

(c) Make a collection of typical geological and mineralogical specimens, especially those of economic and commercial importance such collection constituting the museum of the division.

(d) Provide a library of books, reports, and drawings bearing upon the mineral industries, the sciences of mineralogy and geology, and the arts of mining and metallurgy, such library constituting the library of the division.

(e) Make a collection of models, drawings, and descriptions of the mechanical appliances used in mining and metallurgical processes.

(f) Preserve and so maintain such collections and library as to make them available for reference and examination, and open to public inspection at reasonable hours.

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(g) Maintain, in effect, a bureau of information concerning the mineral industry of this State to consist of such collections and library, and arrange, classify, catalogue, and index the data therein contained, in a manner to make the information available to those desiring it.

(h) Issue from time to time such bulletins as he may deem advisable concerning the statistics and technology of the mineral industries of this State.

2206. The State Mineralogist may prepare a special collection of ores and minerals of California to be sent to or used at any world's fair or exposition in order to display the mineral wealth of the State.

2207. The owner, lessor, lessee, agent, manager, or other person in charge of any mine of whatever kind or character within the State shall forward to the State Mineralogist, upon his request, at his office, not later than the thirty-first day of March in each year, a detailed report upon forms which will be furnished showing the character of the mine, the number of men employed, the method of working the mine and the general condition thereof, and the total mineral production for the past year. He shall also furnish any additional information relative to such mine that the State Mineralogist may from time to time require for the proper discharge of his official duties. Any such person who fails to comply with the provisions of this section is guilty of a misdemeanor.*

2208. The State Mineralogist or a qualified assistant may at any time enter or examine any and all mines, quarries, wells, mills, reduction works, refining works, and other mineral properties or working plants in this State in order to gather data to comply with the provisions of this chapter.

2209. The State Mineralogist may fix a price upon and dispose of to the public all publications of the division, including reports, bulletins, maps, registers, or other publications. The price shall approximate the cost of publication and distribution. He may also furnish the publications of the division to public libraries without cost and may exchange publications with geological surveys, scientific societies, and other like bodies.

2210. All money received by the division from sales of publications issued by the division shall be deposited at least once each month in the State treasury to the credit of the Division of Mines revolving printing fund, which fund is continued in existence. This fund is appropriated for the use of the division, in addition to such other funds as may be appropriated, for the printing and publishing of reports, bulletins, and maps issued by the division. The State Controller may require financial reports from the division or any officer thereof.

(Added by Stats. 1939, Ch. 96, as part of codification.)

* Sec. 19 of the Penal Code of California provides: "Except in cases where a different punishment is prescribed by this code, every offense declared to be a misdemeanor is punishable by imprisonment in a county jail not exceeding six months, or by a fine not exceeding five hundred dollars, or by both."

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PUBLICATIONS OF THE DIVISION OF MINES

During the past sixty-two years, in carrying out the provisions of the organic act creating the former California State Mining Bureau, there have been published many reports, bulletins and maps which go to make up a library of detailed information on the mineral industry of the State, a large part of which could not be duplicated from any other source.

One feature that has added to the popularity of the publications is that many of them have been distributed without cost to the public, and even the more elaborate ones have been sold at a price which barely covers the cost of printing.

Owing to the fact that funds for the advancing of the work of this department have usually been limited, the reports and bulletins mentioned are printed in limited editions many of which are now entirely exhausted.

Copies of such publications are available for reference, however, in the offices of the Division of Mines, in the Ferry Building, San Francisco; State Building, Los Angeles; State Office Building, Sacramento; Redding; and Division of Oil and Gas at Santa Barbara, Santa Paula, Taft, Bakersfield, Coalinga. They may also be found in many public, private and technical libraries in California and other states and foreign countries.

A catalog of all publications from 1880 to 1917, giving a synopsis of their contents, is issued as Bulletin No. 77.

Publications in stock may be obtained postpaid by addressing the San Francisco, Los Angeles or Sacramento offices and enclosing the requisite amount.

Remittances of stamps in an amount not to exceed 26 cents, currency or coin will be accepted at sender's risk. Payment is preferred in the form of money orders.

Money orders should be made payable to the Division of Mines.

NOTE.—The Division of Mines frequently receives requests for some of the early Reports and Bulletins now out of print, and it will be appreciated if parties having such publications and wishing to dispose of them will advise this office.

Write for latest revised price list.

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REPORTS

Asterisks (**) indicate the publication is out of print.	Price (including postage and sales tax)
**First Annual Report of the State Mineralogist, 1880, 43 pp. Henry G. Hanks	----
**Second Annual Report of the State Mineralogist, 1882, 514 pp., 4 illustrations, 1 map. Henry G. Hanks	----
**Third Annual Report of the State Mineralogist, 1883, 111 pp., 21 illustrations. Henry G. Hanks	----
**Fourth Annual Report of the State Mineralogist, 1884, 410 pp., 7 illustrations. Henry G. Hanks	----
**Fifth Annual Report of the State Mineralogist, 1885, 234 pp., 15 illustrations, 1 geological map. Henry G. Hanks	----
Sixth Annual Report of the State Mineralogist, Part I, 1886, 145 pp., 3 illustrations, 1 map. Henry G. Hanks--Price $0.75, sales tax $0.02	$0.77
Part II, 1887, 222 pp., 36 illustrations. William Irelan, Jr.---- Price $0.75, sales tax $0.02	.77
**Seventh Annual Report of the State Mineralogist, 1887, 315 pp. William Irelan, Jr.	----
**Eighth Annual Report of the State Mineralogist, 1888, 948 pp., 122 illustrations. William Irelan, Jr.	----
**Ninth Annual Report of the State Mineralogist, 1889, 352 pp., 57 illustrations, 2 maps. William Irelan, Jr.	----
**Tenth Annual Report of the State Mineralogist, 1890, 983 pp., 179 illustrations, 10 maps. William Irelan, Jr.	----
Eleventh Report (First Biennial) of the State Mineralogist, for the two years ending September 15, 1892, 612 pp., 73 illustrations, 4 maps. William Irelan, Jr.----Price $1.50, sales tax $0.05	1.55
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**Fourteenth Report of the State Mineralogist, for the Biennial Period 1913-1914, Fletcher Hamilton, 1915: A General Report on the Mines and Mineral Resources of Amador, Calaveras, Tuolumne, Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma, Yolo, Del Norte, Humboldt, Mendocino, Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, San Diego, Imperial, Shasta, Siskiyou and Trinity Counties, 974 pp., 275 illustrations, cloth	----
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Seventeenth Report of the State Mineralogist, 1920, 'Mining in California during 1920,' Fletcher Hamilton; 562 pp., 71 illustrations, cloth——Price $2.50, sales tax $0.08	2.58
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Chapters of Twenty-second Report of the State Mineralogist, 'Mining in California,' Lloyd L. Root. Published quarterly:	
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**Map of Mother Lode Region	----

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March 1, 1941.

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Map No. 58—Trico Gas Field, Kern, Kings and Tulare Counties. Price $1.00, sales tax $0.03	1.03

DETERMINATION OF MINERAL SAMPLES

Samples (limited to two at one time) of any mineral found in the State may be sent to the Division of Mines for identification, and the same will be classified free of charge. No samples will be determined if received from points outside the State. It must be understood that no assays, or quantitative determinations will be made. Samples should be in lump form if possible, and marked plainly with name of sender on outside of package, etc. No samples will be received unless delivery charges are prepaid. A letter should accompany sample, giving locality where mineral was found and the nature of the information desired.

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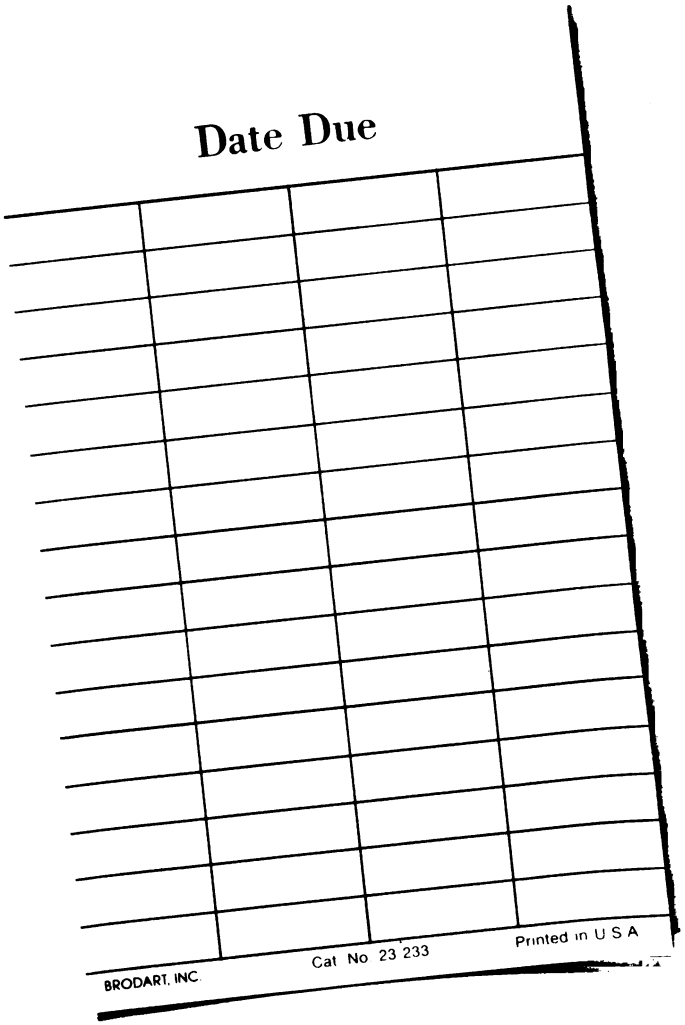

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